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Title: LANL Bicycle Safety Committee - November 2018 Survey Results

Author(s): Gable, Carl Walter; Dougherty, Lisa Marie; Brown, Charlene Beth; Olds, Cristina; Mairson, William Raymond; Stewart, Grant Lorenz; Kettering, Brett Michael; Moulton, Travis; Neukirch, Levi Patrick; Lay, Erin Hoffmann; Tourangeau, Eva Marie

Intended for: Share results of survey with entities outside of LANL

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# LANL Bicycle Safety Committee – November 2018 Survey Results


Los Alamos NATIONAL LABORATORY EST. 1943

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National Nuclear Security Administration

**Cover Illustration:**

*Front cover top right – Harold Agnew, Director of Los Alamos National Laboratory from 1970 through 1979; picture taken in 1977.*

*Front cover bottom left – Tom Mason, Director of Los Alamos National Laboratory from October 2018 to present; picture taken in front of Oak Ridge National Laboratory, obtained from https://twitter.com/thommason.*

**LANL Bicycle Safety Committee:**

| | | |
|---|---|---|
| Co-Chair | Carl Gable | EES-16 |
| Co-Chair | Lisa Dougherty | W-4 |
| Secretary | Charlene Brown | EPC-ES |
| Communications Specialist | Cristina Olds | CPA-CAS |
| Management Champion | William Mairson | ALD-ESHQSS |
| Infrastructure | Grant Stewart | UI-DO |
| Bicycle Community Representative Road | Brett Kettering | HPC-DO |
| Bicycle Community Representative Mountain | Travis Moulton | E-2 |
| Bicycle Community Representative Commuter | Levi Neukirch | P-25 |
| Bicycle Community Representative Ebike | Erin Lay | ISR-2 |
| Student Bicycle Community Representative | Eva Tourangeau | CCS-6 |

# EXECUTIVE SUMMARY

In November of 2018, Los Alamos National Laboratory's (LANL) Bicycle Safety Committee conducted a survey via SurveyMonkey. The survey was advertised via LANLToday, an email newsletter that is sent to all employees with approximately 4,800[1] readers. Articles in LANLToday are also linked on the main internal web page at LANL. It is estimated that there are approximately 12,000[2], in addition with contract employees and contractors it is estimated that approximately 17,500[3] people work on site at LANL in Los Alamos County. 319 people participated in the survey. LANL is located 35 miles northwest of Santa Fe, NM in Los Alamos. The population of Los Alamos County in April of 2010 per the United States Census Bureau was 17,950[4]. The majority of the LANL's employees work at facilities in Los Alamos County, and a significant number of those workers commute from surrounding communities and from other locations as far as Taos and Albuquerque. The majority of the respondents (75%) live in Los Alamos County with 14% of the respondents living in the City of Santa Fe. 47% of the respondents ride a bicycle multiple days per week. 156 respondents bicycle commute, with 118 commuting multiple days per week during the summer and 73 commuting multiple days per week during the winter.

60% of the respondents are uncomfortable sharing roads with motor vehicles and would prefer to cycle in situations where slower moving traffic was given dedicated road space such as a bicycle lane or a shoulder. When choosing routes 72% choose bike lanes, paths, or large shoulders; 68% choose routes with low traffic density; and 40% choose routes based upon pavement quality. Many respondents reported having experienced careless driving, poor road infrastructure, and poor road maintenance while bicycling around LANL. 30% of respondents report having been involved in some form of a bicycle crash bicycling around LANL.

53% of respondents report that there are not adequate bicycle storage facilities near the entrance of their primary work location and many respondents also report that access to showering facilities deters them from commuting via bicycles. 25% of respondents report that if laboratory owned bicycles were available, they would use them for approximately 25% to 50% of their intra-lab business travel. 60% of respondents state that secure bicycle storage and a shower near their workplace would incentivize them to commute via bicycle.

Respondents were asked in a free form text box how relations between cyclists and non-cyclists could be improved. Approximately 60% of the answers were interpreted as stating that education would improve the relationship with 45% of the answers asking for dedicated bicycling lanes. Likewise, respondents were asked in a free form text box the locations of unsafe bicycle conditions at LANL. 36% of the answers referred to Diamond Drive, 25% referred to West Jemez Road, and 24% referred to Pajarito Road. Only 14% referred to East Jemez Road, but there was a measurable amount of emotional energy in those answers since East Jemez Road was re-paved during the summer of 2018 in a way that marginalized the existing poorly maintained shoulder. The number one improvement (67% of respondents) requested was to install more dedicated bicycling lanes.

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[1] P. Fierro (personal communication, February 25, 2019)

[2] Fast Facts (1/31/19). Retrieved from https://www.lanl.gov/newsroom/index.php.

[3] T.E. Quintana (personal communication, February 28, 2019)

[4] QuickFacts Los Alamos CDP, New Mexico (3/05/19). Retrieved from https://www.census.gov/quickfacts/fact/table/losalamoscountynewmexico,whiterockcdpnewmexico,losalamoscdpnewmexico/PST045218.

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# I. INTRODUCTION

Los Alamos National Laboratory (LANL) sits on approximately 40 square miles of land owned by the Department on Energy of which the majority is located in Los Alamos County 35 miles northeast of Santa Fe, New Mexico; see Figure 1. Los Alamos is situated on the Pajarito Plateau formed from volcanic eruptions at above 7,000 feet above sea level. The location is relatively rural with LANL sharing borders with Santa Fe National Forest, Bandelier National Monument, and San Ildefonso Pueblo. LANL employs approximately 12,000[5] workers of which the majority work in facilities located in Los Alamos County. In addition to the 12,000 LANL employees approximately 5,500 contract employees and contractors work on LANL property bringing the total workforce up to 17,500 workers[6]. Approximately 37% of employees live in Los Alamos County with the remainder commuting from Santa Fe, Española, Taos, and Albuquerque.[7]

The NMDOT Roadway Bicycle Guideline Map[8] documents thatmany of the State Highways in and around LANL have between 0 to 2 feet of useable shoulder width. Several portions of those highways in the general vicinity of LANL have grades that exceed 2.5% and are considered mountainous routes. In addition, the NMDOT Roadway Bicycle Guideline Map estimates average daily traffic on the State Highways in LANL's vicinity to include between 5,000 and 15,000 vehicles. The commuting distances, traffic density, mountainous terrain, and road conditions provide a strong impediment for LANL employees who bicycle commute or may wish to bicycle commute from outside of Los Alamos County.

Los Alamos County was awarded a bronze status "Bicycle Friendly Community" by the League of American Bicyclist in the fall of 2017[9]. Per the report card, 100% of the roads maintained by the county that are considered high-speed roads have dedicated bicycle lanes. In addition, Los Alamos County ordinance 38-545 requires that motor vehicles provide a minimum of 5 feet when passing a bicycle. The report card also estimates that the percentage of bicycling commuters in the county to be 3.5%.

LANL's Bicycle Safety Committee has the mission "To establish LANL as a safe, bicycle-friendly national laboratory"[10]. The committee is tasked with supporting infrastructure and transportation projects to enhance bicycle safety, perform education outreach, provide education on bicycle safety, support a bicycle community, and promote bicycle commuting. Bicycle Safety Committee members are volunteers that support the committee while maintaining their assigned workload.

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[5] Fast Facts (1/31/19). Retrieved from https://www.lanl.gov/newsroom/index.php.
[6] T.E. Quintana (personal communication, February 28, 2019
[7] Fast Facts (1/31/19). Retrieved from https://www.lanl.gov/newsroom/index.php.
[8] NMDOT Roadway Bicycle Guideline Map (2/1/19). Retrieved from http://nmdot.maps.arcgis.com/apps/Viewer/index.html?appid=e41ec746a4ce4eb292e919779968a291.
[9] Bicycle Friendly Community Fall 2017 Los Alamos, NM (2/1/19). Retrieved from https://www.bikeleague.org/sites/default/files/bfareportcards/BFC_Fall_2017_ReportCard_Los_Alamos_NM.pdf.
[10] Bicycle Safety Committee Charter. Revision 1.1 November 2018.

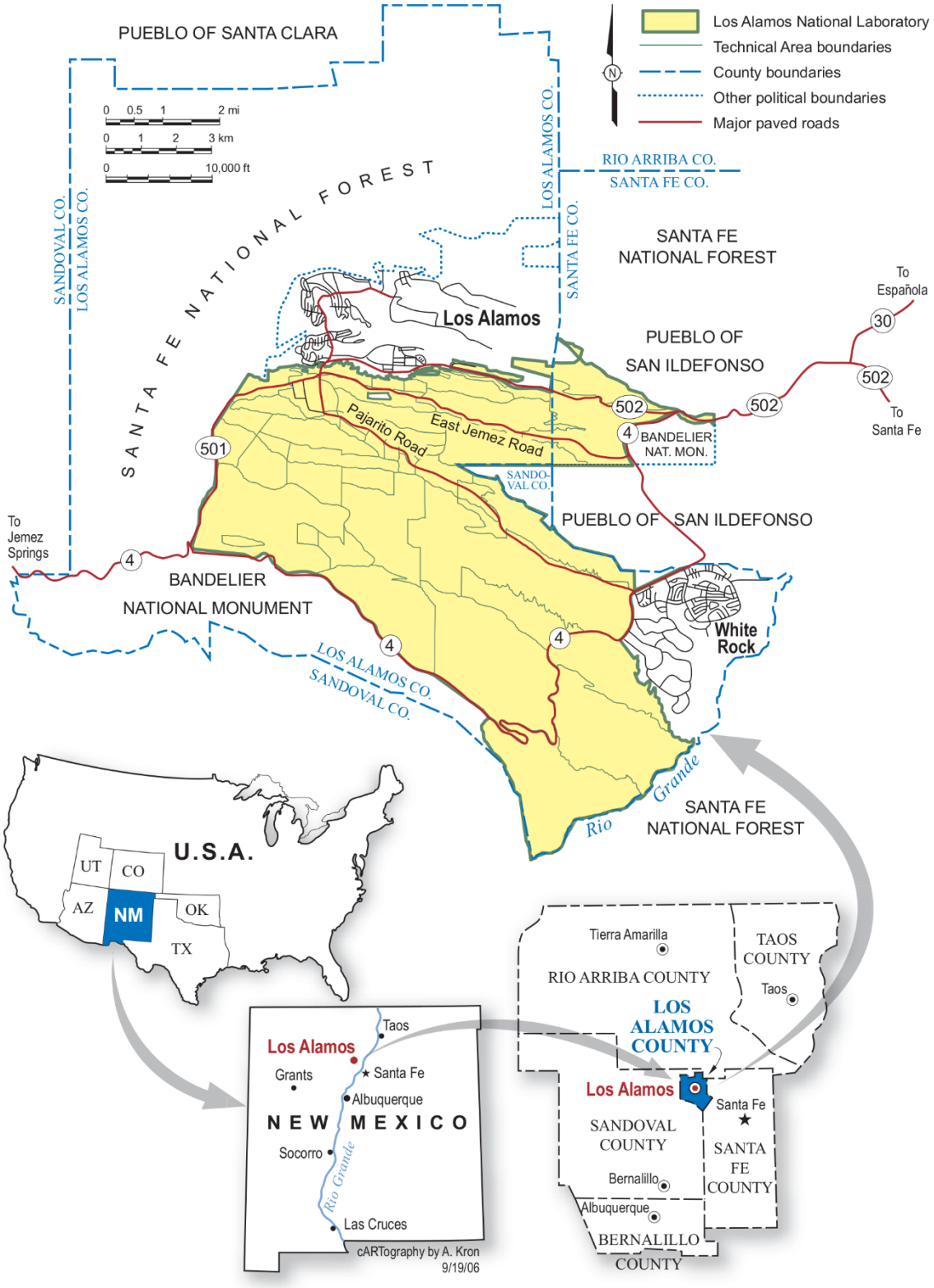


*Figure 1: Location of LANL*
*(https://www.energy.gov/sites/prod/files/2015/06/f23/RS1738_Attachment%20N.pdf)*

## II. NOVEMBER 2018 SURVEY

In November of 2018, LANL's Bicycle Safety Committee conducted a survey via SurveyMonkey with 29 questions. The survey was announced via an internal news story linked to LANL's main internal web page. The announcement was also transmitted to all employees via a daily email, LANLToday with a readership of approximately 4,500[11]. Of the 12,000 employees, 319 responses were collected. Each question was set up as an independent question with the option provided to skip the question if desired. The tabulated results of the survey can be found in Appendix A.

Since the survey participants were self-selected instead of a true random sample, the results cannot be used to estimate population trends within the LANL workforce. With a strong bias towards the bicycling community, the results can be used to identify opinions and trends among the bicycling community at LANL. This is reinforced with the fact that about 2.7% of the workforce participated in the survey, and 84% of those 2.7% reported riding a bicycle at least a few times a year. In addition as previously noted, only 37% of LANL's workforce resides in Los Alamos County, however, 75% of the respondents reported living in Los Alamos County. Thus the survey is heavily biased towards cyclists and people who reside in Los Alamos County.

## III. SURVEY DEMOGRAPHICS

92% of the respondents report being older than 25 and younger than 65, see Figure 2, approximately 87% of LANL's employees are between the ages of 25 and 65[12].. The 2010 Census[13] estimates that approximately 53% of the U.S. population is between 25 and 65 years old. The male-to-female ratio reported was approximately 2.5; LANL's Fast Facts[14] reports a male-to-female ratio of 1.8, implying that a larger percentage of the male population participated in the survey than that of the female population; see Figure 3. As previously, noted 75% of the respondents live in Los Alamos County versus the 37% of the total workforce; see Figure 4. 69% of the respondents report having a commute of 10 miles or less; see Figure 5. Not only do 75% of the respondents live in Los Alamos County, 57% of the respondents work in and around the main site at LANL, Technical Area 3 (TA-3), which is mostly bounded by West Jemez Rd., Diamond Dr., and Pajarito Rd.; see Figure 6. This area is also referred to as South Mesa. This area also contains the largest Technical Area (TA), and is the closest to the Los Alamos town site.

[11] P. Fierro (personal communication, February 25, 2019)
[12] T.E. Quintana (personal communication, February 28, 2019
[13] QT-PT1 Age Groups and Sex: 2010, 2010 Census Summary File 1 Geography ZCTA5 87544 (1/31/19). Retrieved from https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_SF1_QTP1&prodType=table.
[14] Fast Facts (1/31/19). Retrieved from https://www.lanl.gov/newsroom/index.php.

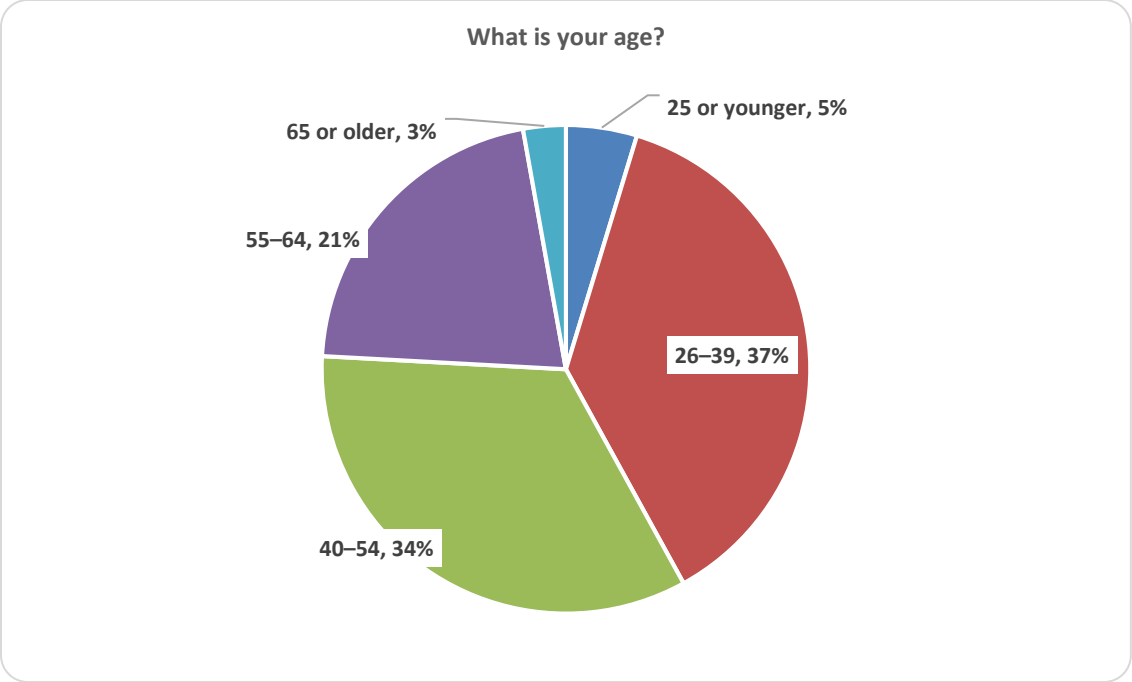


*Figure 2: Question1: What is your age? 319 responses from 319 participants*

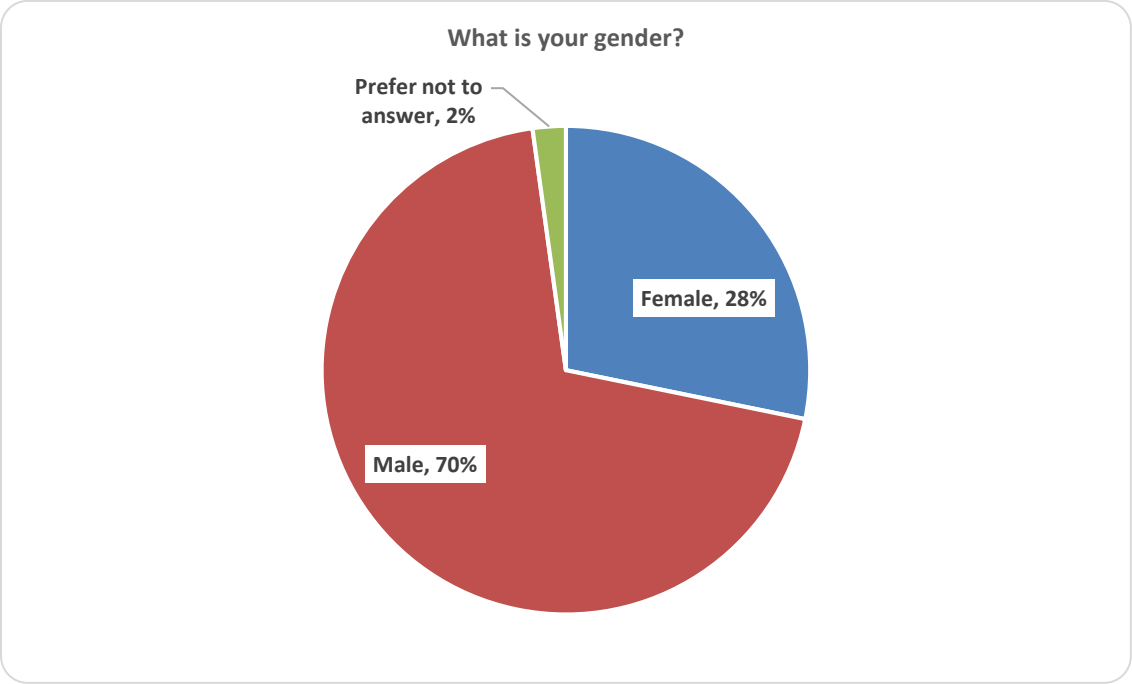


*Figure 3: Question 2: What is your gender? 319 responses from 319 participants*

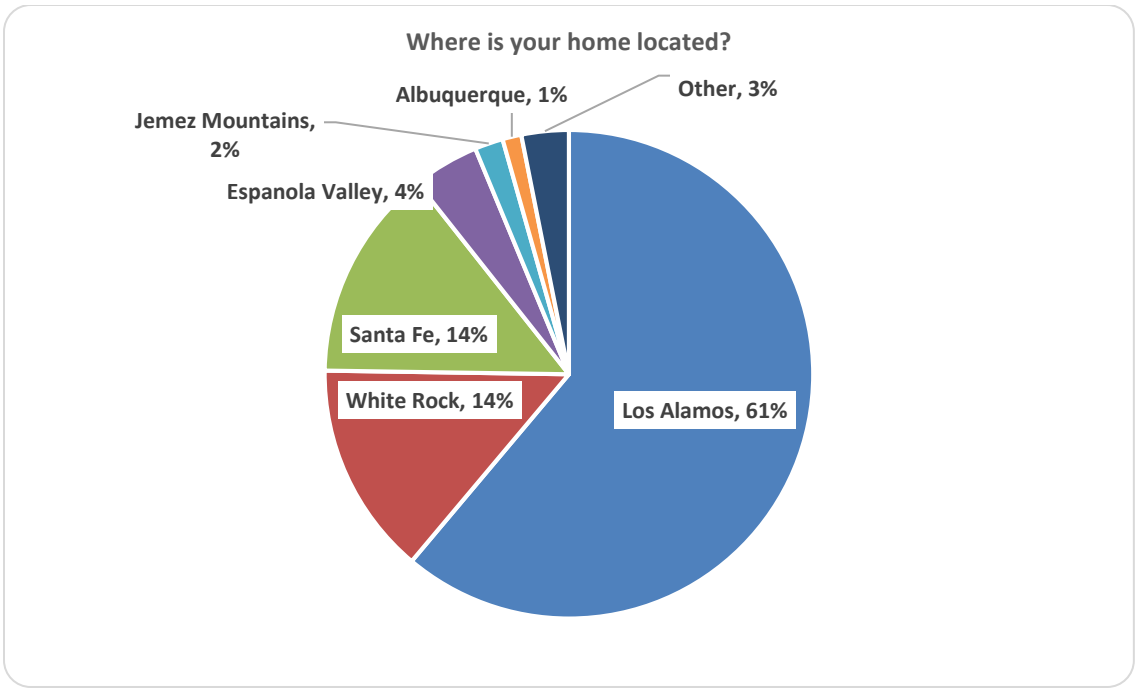


*Figure 4: Question 3: Where is your home located? 319 responses from 319 participants*

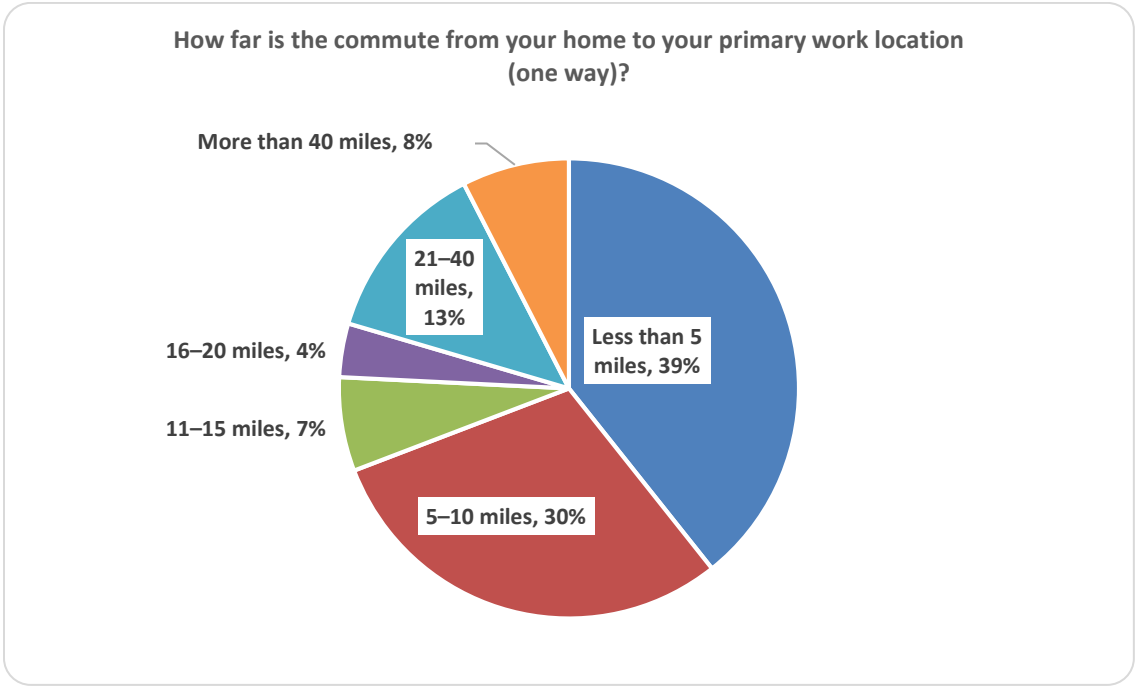


*Figure 5: Question 4: How far is the commute from your home to your primary work location (one way)? 318 responses from 319 participants*

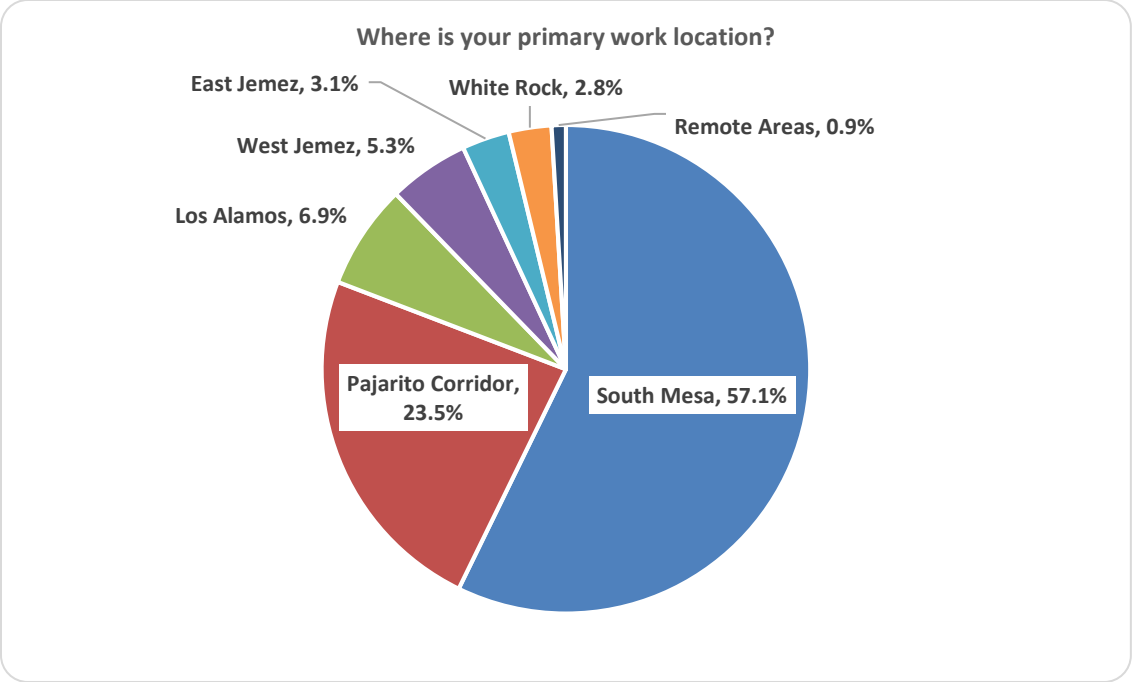


*Figure 6: Question 5: Where is your primary work location? 319 responses from 319 participants*

The majority of respondents ride frequently with 67% reporting that they ride at least once a month or more; see Figure 7. The respondents reported that recreational riding, commuting, and short trips were the most frequent type of bicycling with competitive, gravel, and cyclocross being the least frequent types of bicycling; see Figure 8. In addition, 12 respondents reported that they ride an e-bike and another 11 report that they plan to start riding an e-bike; see Figure 9.

As previously stated, the survey has a strong bias to existing bicycle enthusiasts that live in Los Alamos and work in TA-3. In addition, a larger percentage of the respondents were male than that of LANL's general population, adding a possible male bias to the survey. When compared to LANL's employee age demographics, the data tracked closely with the data collected in the survey. There was however a trend for a higher percentage of under 40 employees to bicycle than the percentage of under 40 employees, and the opposite for over 40 employees. It is noted that Figure 2 does show that the largest age population is the 26-39 age segment. Understanding the potential biases of the survey should help provide a deeper insight to the results of the rest of the questions asked during the survey.

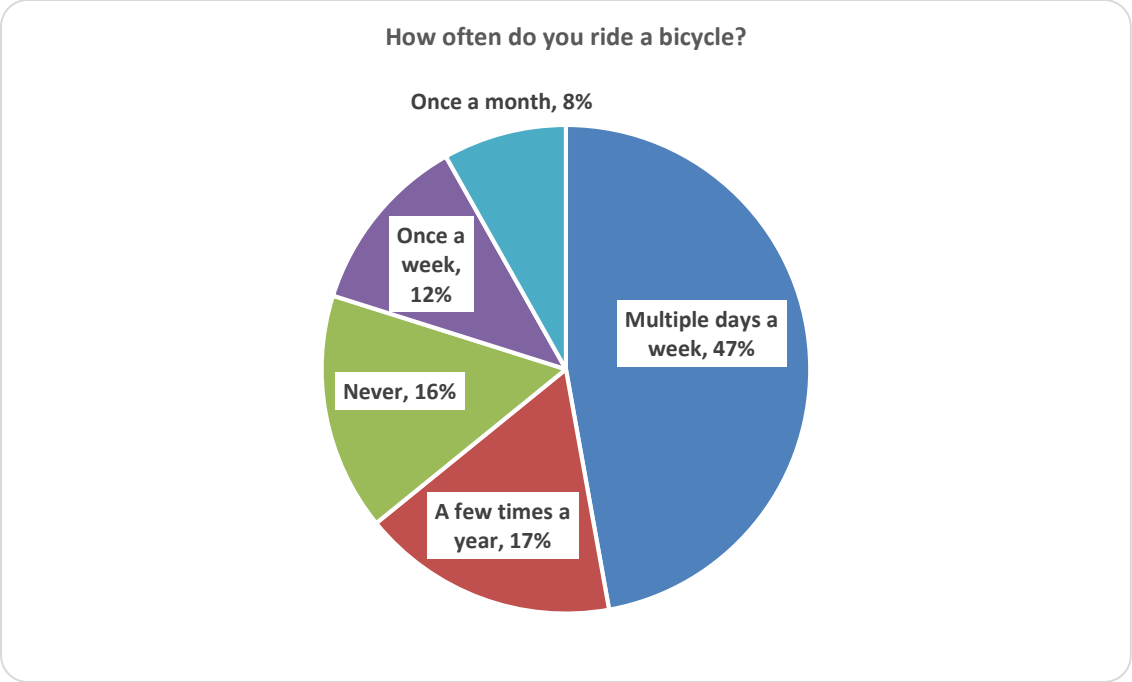


*Figure 7: Question 6: How often do you ride a bicycle? 318 responses from 319 participants*

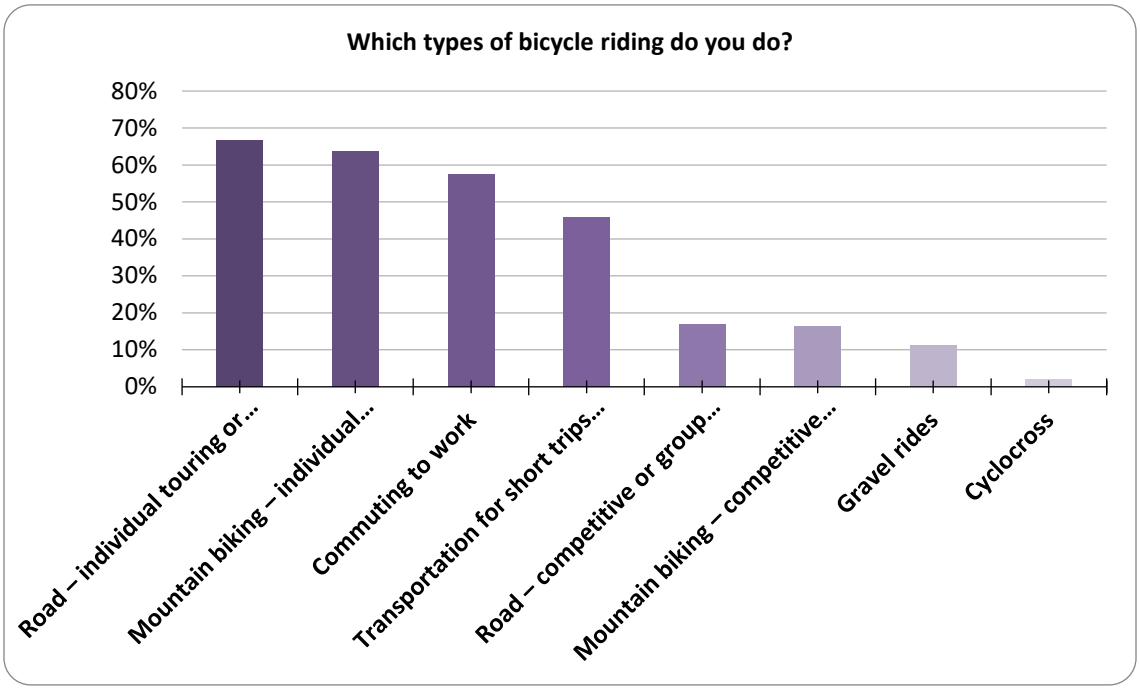


*Figure 8: Question 9: Which types of bicycle riding do you do? 261 responses from 319 participants*

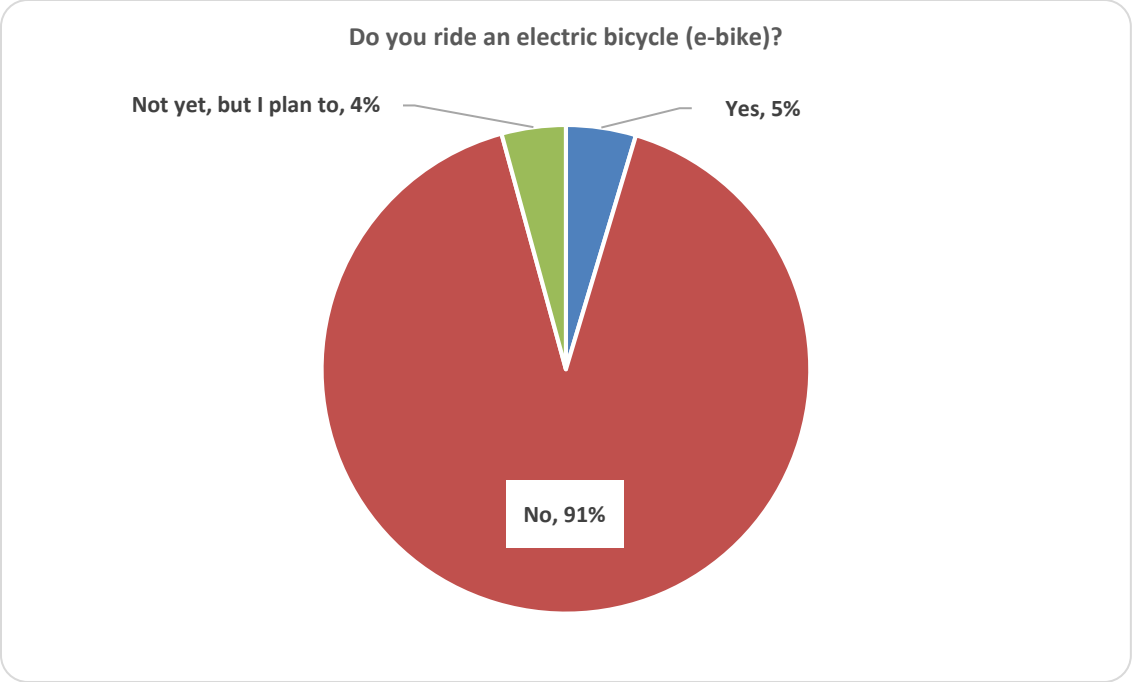


*Figure 9: Question 10: Do you ride an electric bicycle (e-bike)?*
*259 responses from 319 participants*

## IV. SURVEY GENERAL RESULTS

Participants were asked why they did and did not ride a bicycle in questions 7 and 8. The questions were not exclusive, so a participant could have answered both questions. 46 participants answered the "Why not" question and 262 answered the "Why do" question. This resulted with 11 participants responding to both questions. The 262 participants that answered the "Why do" question (question 8) does track relatively well with question 6 from to which 214 participants report riding a bike at least monthly or more. The top three reasons reported by the 46 participants that do not ride a bicycle are they prefer other sports, safety concerns, and health reasons. The top three reasons reported by the 262 participants that they do ride a bicycle is for exercise or recreation, as a means of transportation, and for environmental concerns.

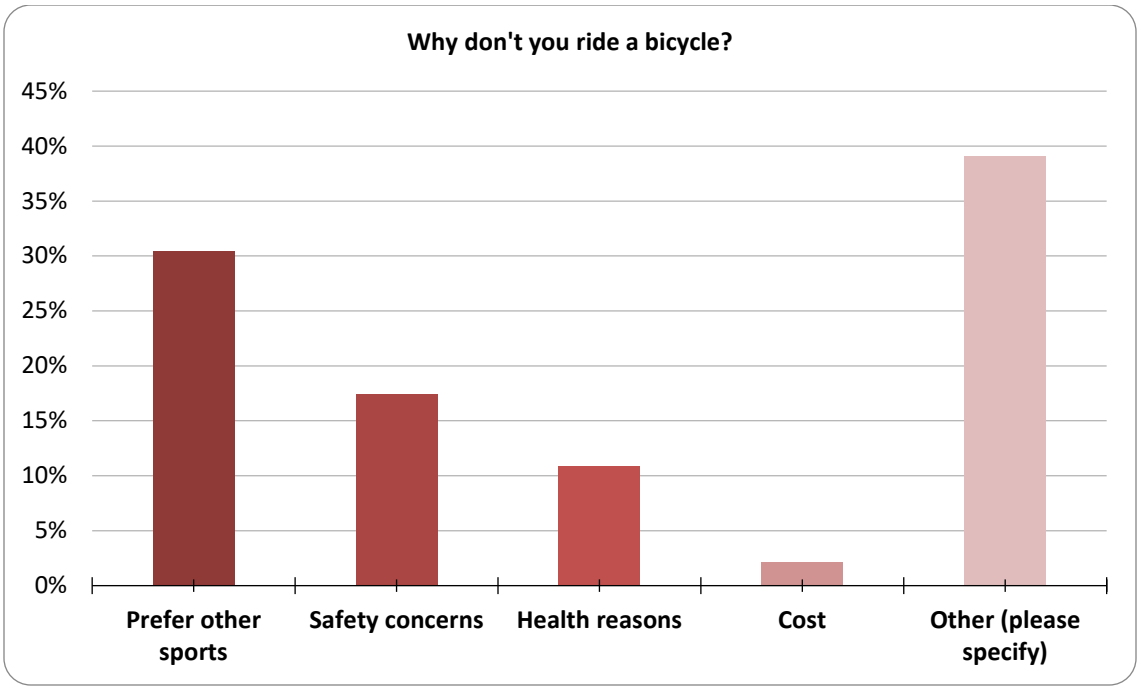


*Figure 10: Question 7: Why don't you ride a bicycle? 46 responses from 319 participants*

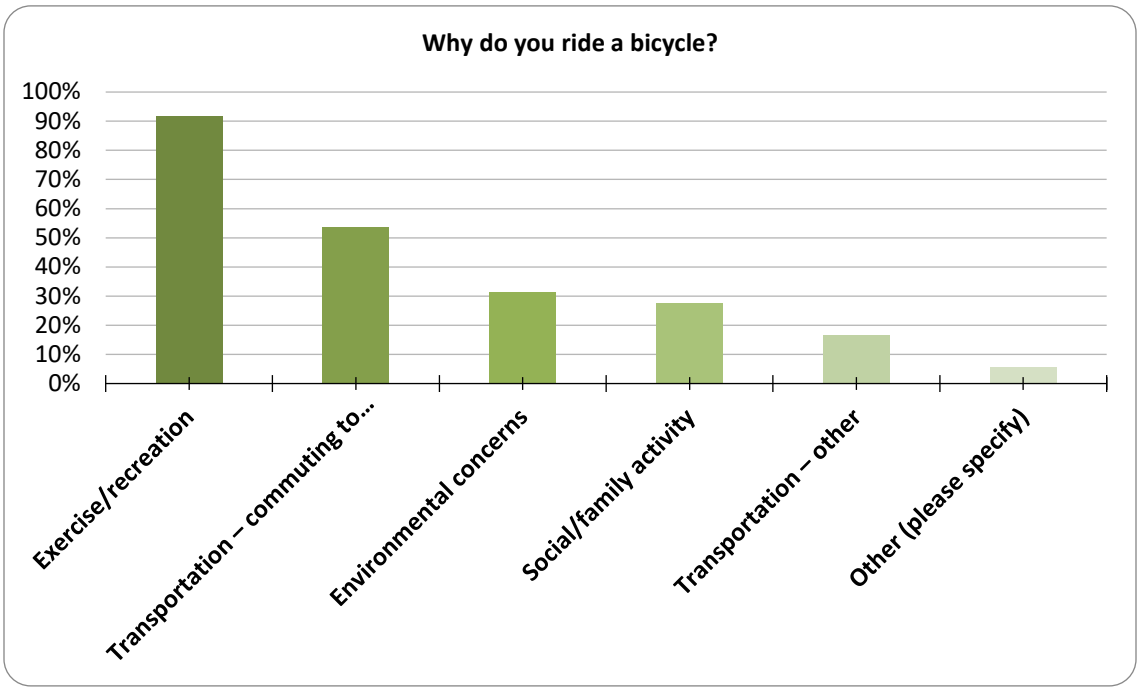


*Figure 11: Question 8: Why do you ride a bicycle? 262 responses from 319 participants*

In question 11, see figure 12, participants were asked about their comfort level on roadways. 157 participants responded that they are uncomfortable riding on roads with no bike lanes or shoulder. Most participants do not feel comfortable riding with motor vehicle traffic, and prefer not impeding motor vehicle traffic. However, when compared to the 36 participants that responded they will not share space with motor vehicle traffic, the majority (226 participants)

reports that they will share space with motor vehicle traffic. Question 12 asked participants what factors influenced their selection of a route to ride their bicycle. Participants were allowed to choose 3 answers in question 12 with 260 participants providing 811 responses (it appears some participants choose more than 3). 23% percent of the responses stating that dedicated lanes, paths, or shoulders was a top factor with 23% percent of the responses stating that low-to-moderate traffic density was a top factor in their selection of a route. This reinforces the data from question 11 that many cyclists prefer to be separated from motor vehicle traffic.

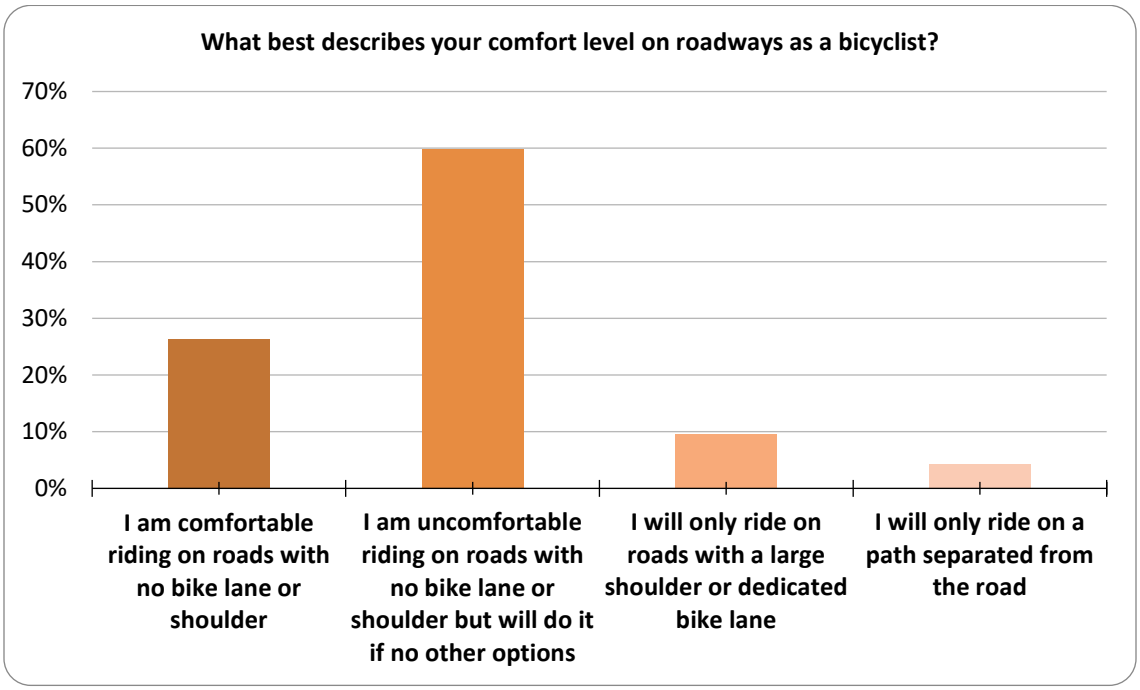


*Figure 12: Question 11: What best describes your comfort level on roadways as a bicyclist? 262 responses from 319 participants*

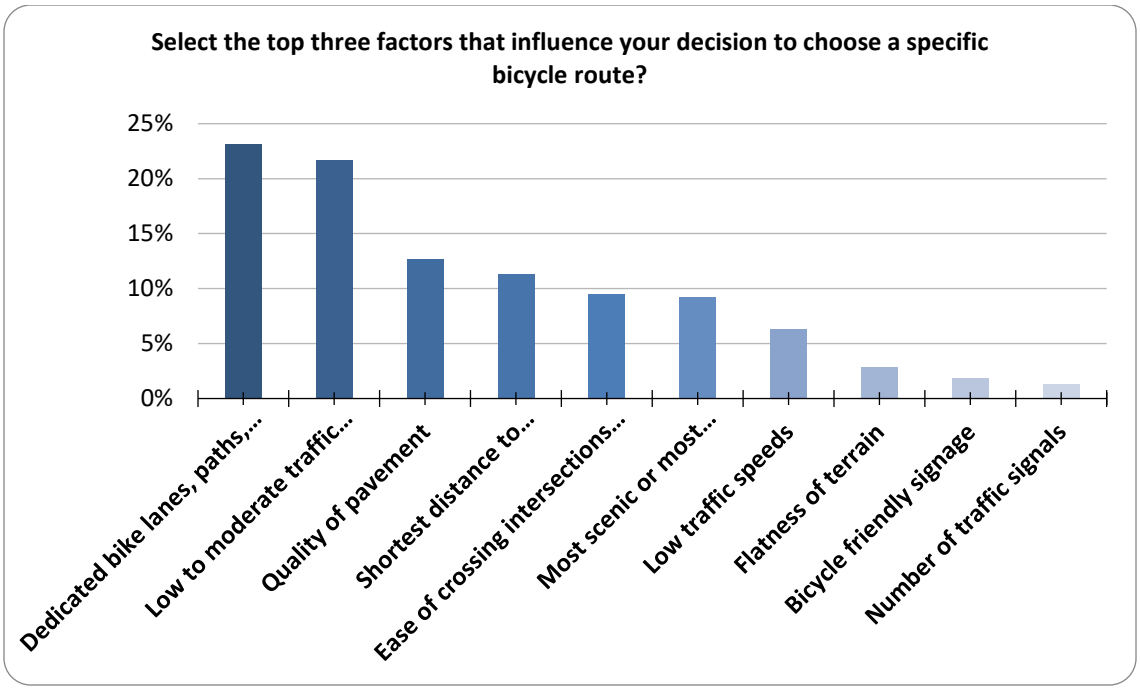


*Figure 13: Question 12: Select the top three factors that influence your decision to choose a specific bicycle route? 260 of 319 participants provided answers with 811 responses*

Question 13, (see Figure 14,) allowed participants to select multiple responses to the question, "Have you experienced any of the following while bicycling around LANL?" 226 participants provided 806 responses. The top three selections were "Indirect threats from vehicles," "Localized hazards," and "Debris on LANL roads or shoulders." It is also noteworthy that 11% of the responses were for a significant near miss, 10% of the responses were for "Aggression/road rage," and 8.6% of the responses were for crashes.

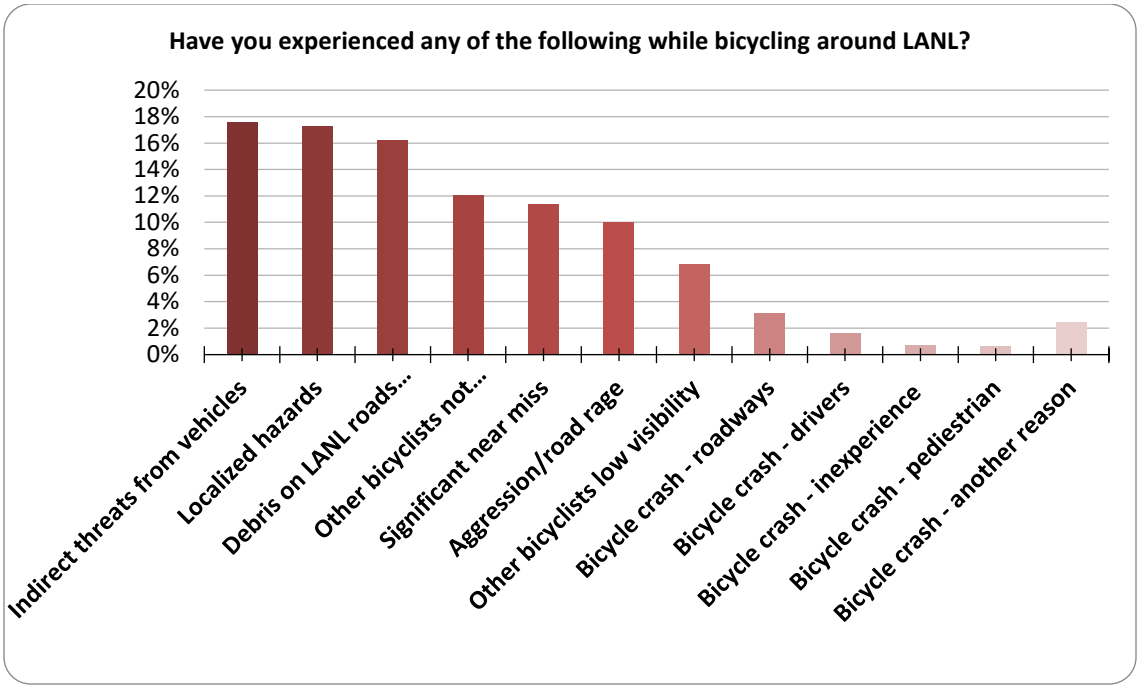


*Figure 14: Question 13: Have you experienced any of the following while bicycling around LANL? 226 of 319 participants provided answers with 806 responses*

## V. BICYCLE COMMUTING

Questions 14 through 19 asked participants various questions about bicycle commuting. Question 14, (see Figure 15,) asked how many of the participants commuted via bicycle from which 60% or 156 of the respondents reported "yes"; note that 58 participants skipped question 14. Question 15, (see Figure 16,) asked, "Why do you bicycle commute?" with 156 respondents, which correlates nicely with the number that answered yes to Question 14. In question 15, participants were allowed to select multiple responses with Fitness (selected more than all other options), Pleasure, Environmentally friendly, and Convenience (e.g., parking) all being selected significantly more than the other available options. 157 participants answered question 16, "How often do you bicycle commute in warmer months (May to October)?" of which 75% responded "Multiple days a week;" see Figure 17. Likewise, 157 participants answered question 17, "How often do you bicycle commute in colder months (November to April)?" of which only 47% responded with "Multiple days a week;" see Figure 18.

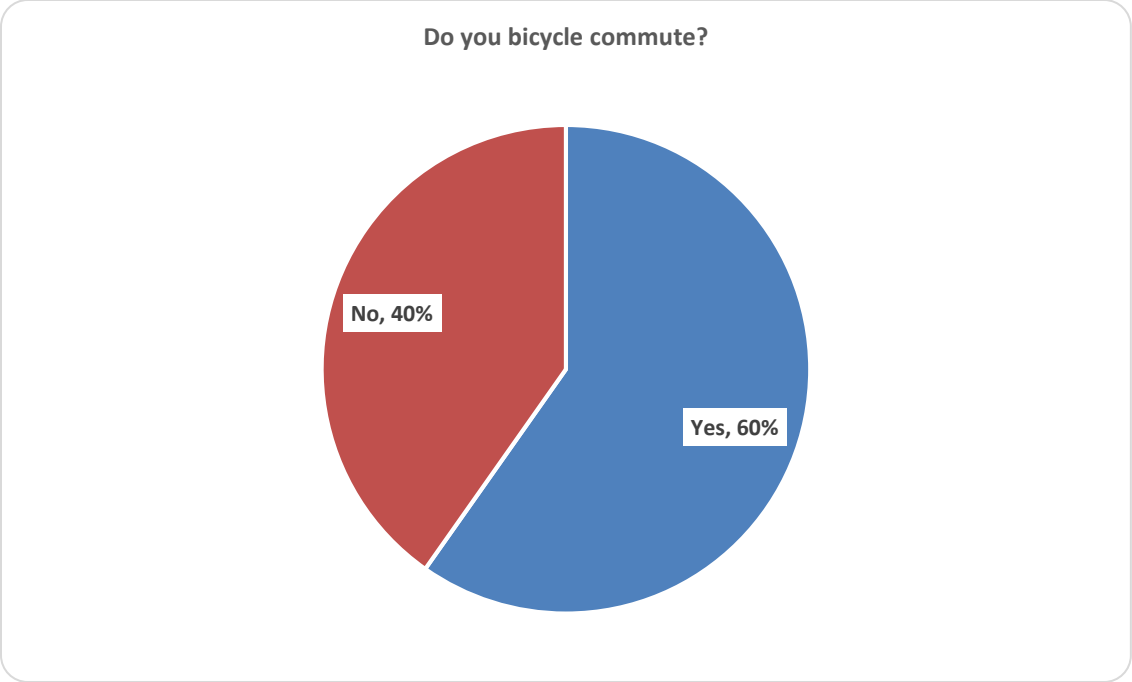


*Figure 15: Question 14: Do you bicycle commute? 261 responses of 319 participants*

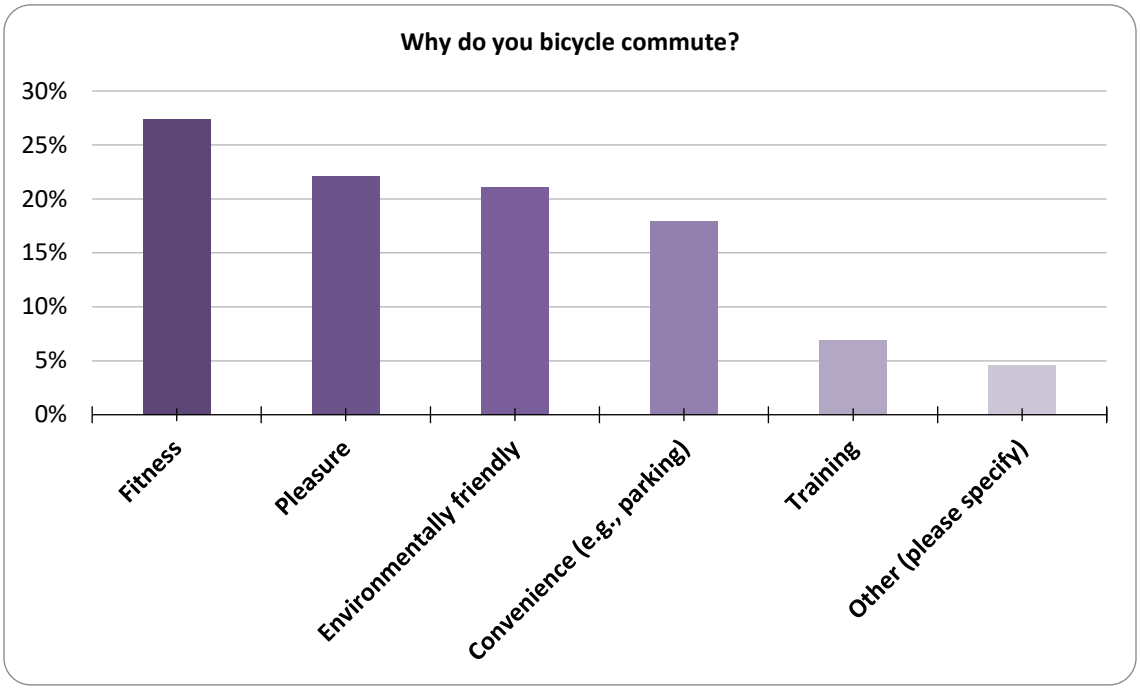


*Figure 16: Question 15: Why do you bicycle commute?*
*156 of 319 participants provided answers with 475 responses*

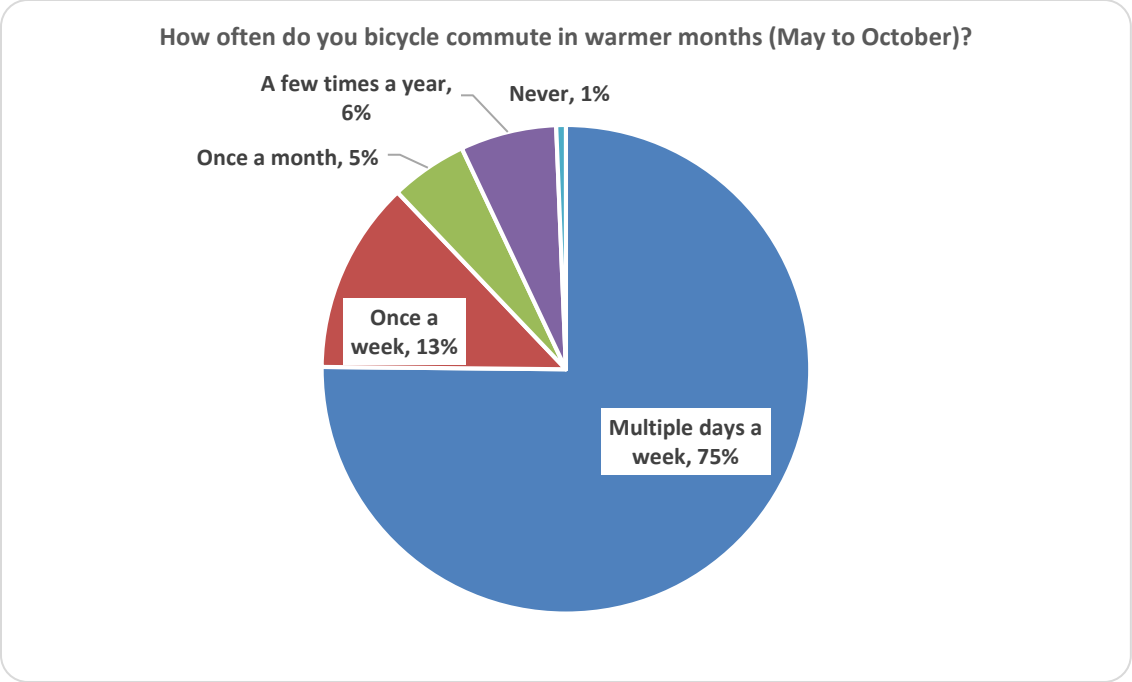


*Figure 17: Question 16: How often do you bicycle commute in warmer months (May to October)? 157 responses from 319 participants*

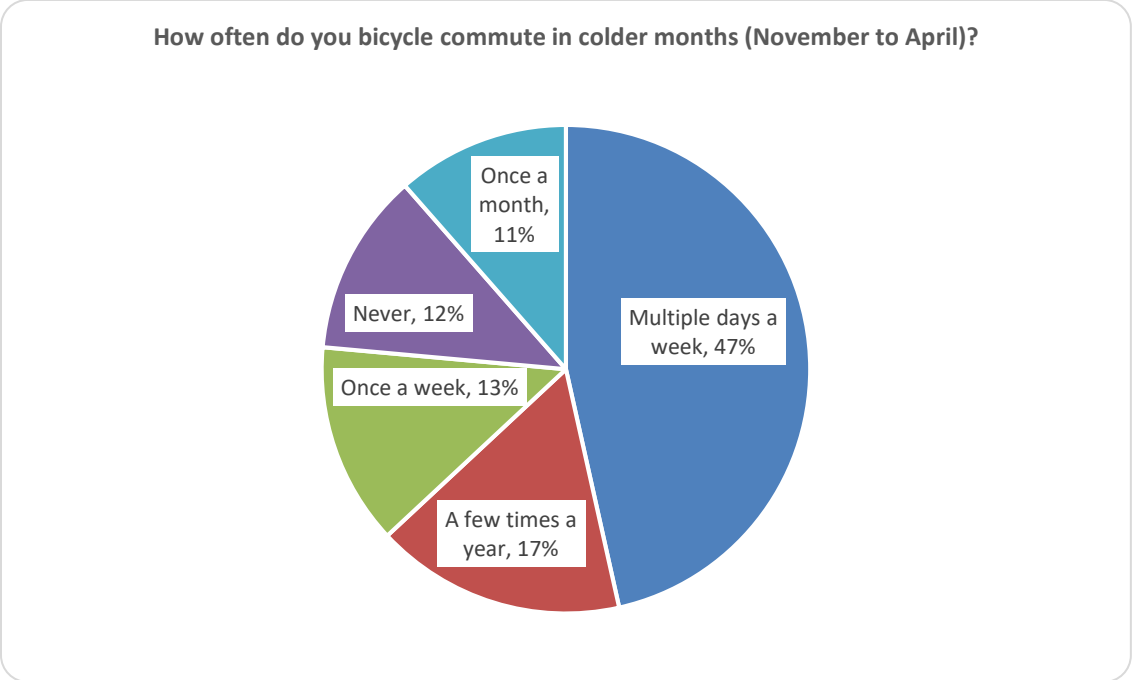


*Figure 18: Question 17: How often do bicycle commute in colder months (November to April)? 157 responses from 319 participants*

Question 18 asked, "Do you have one or more dedicated commuter bikes?" to which 67% of the respondents reported "no;" (see Figure 19). Question 19 asked participants, "What reasons stop

you from bicycle commuting?" to which 102 respondents provided 222 responses. The top three selected responses were "Too far," "Would take too long," and "Other;" see Figure 20. The comments provided when "Other" was selected were pretty diverse, but several comments that were noted that were not chosen as selections were weather, intra-work day mobility, and pre- and post-work day errands. Overall results indicate that there seems to be a couple of hundred dedicated bicycle commuters that commute on a frequent basis.

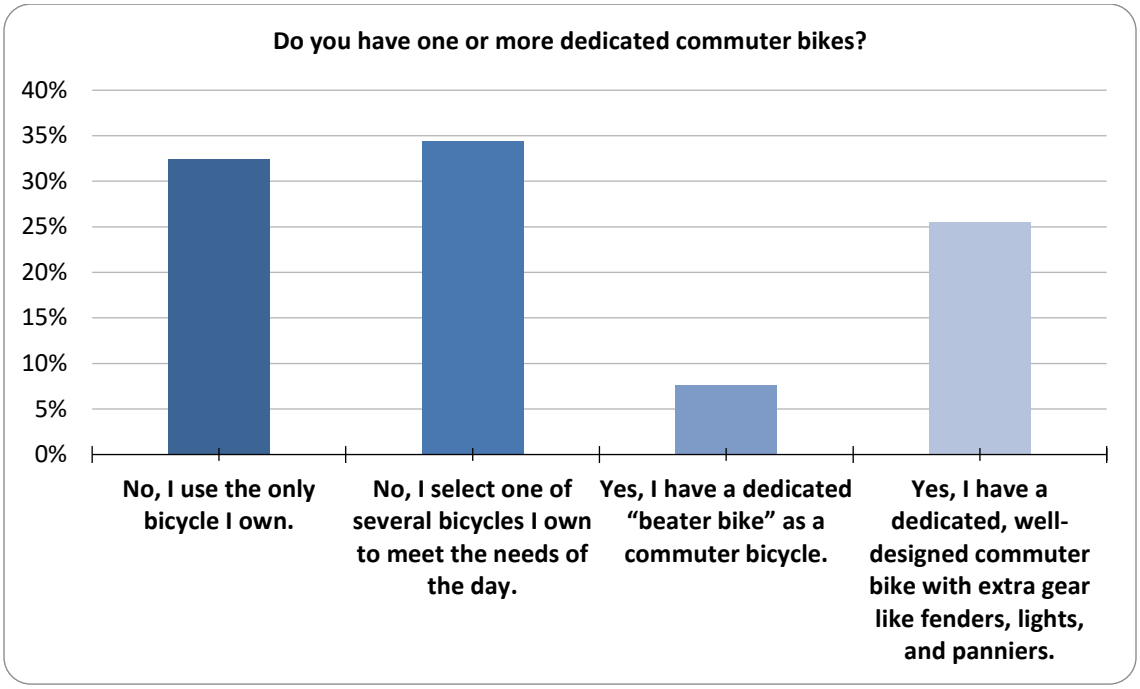


*Figure 19: Question 18: Do you have one or more dedicated commuter bikes? 157 responses from 319 participants*

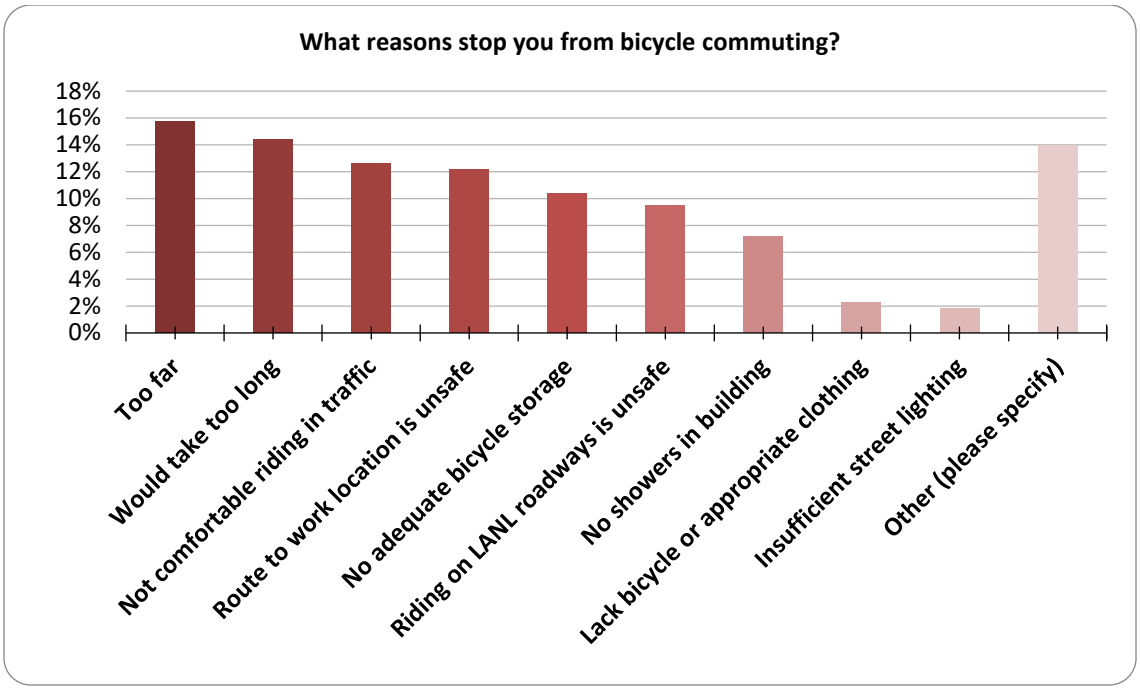


*Figure 20: Question 19: What reasons stop you from bicycle commuting?*
*102 of 319 participants provided 222 responses*

## VI. BICYCLE INFRASTRUCTURE

Questions 20 through 23 and 25 asked participants various questions about bicycle infrastructure at LANL. Question 20 asked participants if there were adequate bicycle storage facilities close to their work location; see Figure 21. 140 respondents reported that there was not adequate bicycle storage. Question 21 followed up by asking what kind of bicycle storage was available with 54% of the responses reporting that there are permanently installed bike racks available and 28% reported that bike lockers are available; see Figure 22.

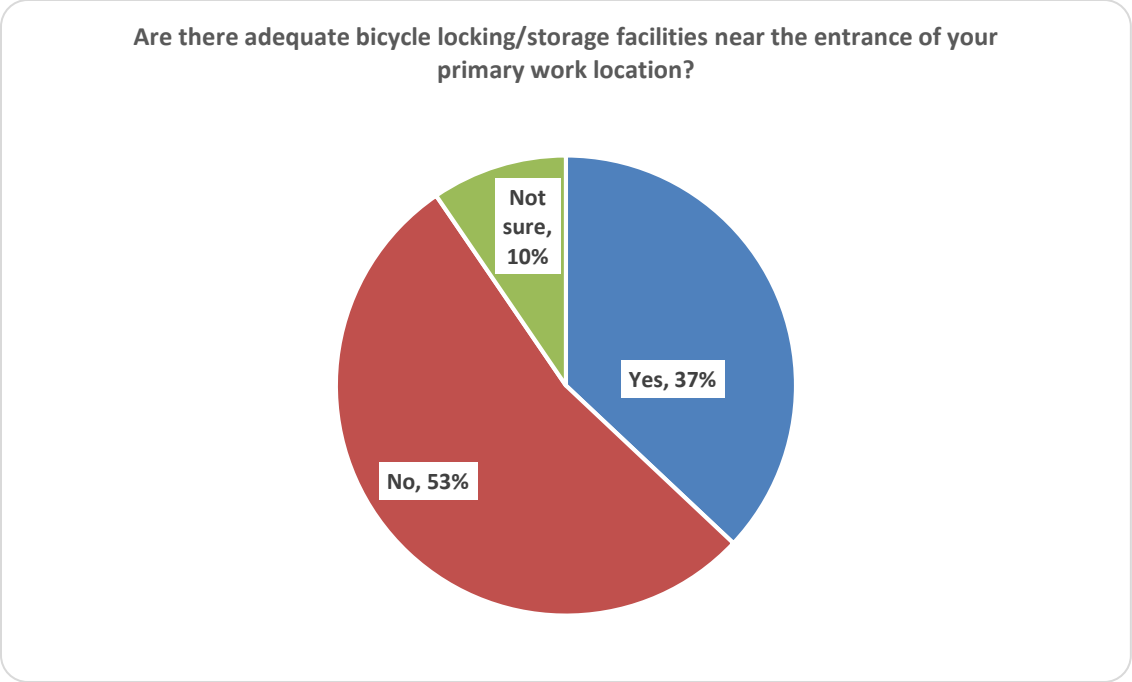


*Figure 21: Question 20: Are there adequate bicycle locking/storage facilities near the entrance of your primary work location? 262 responses from 319 participants*

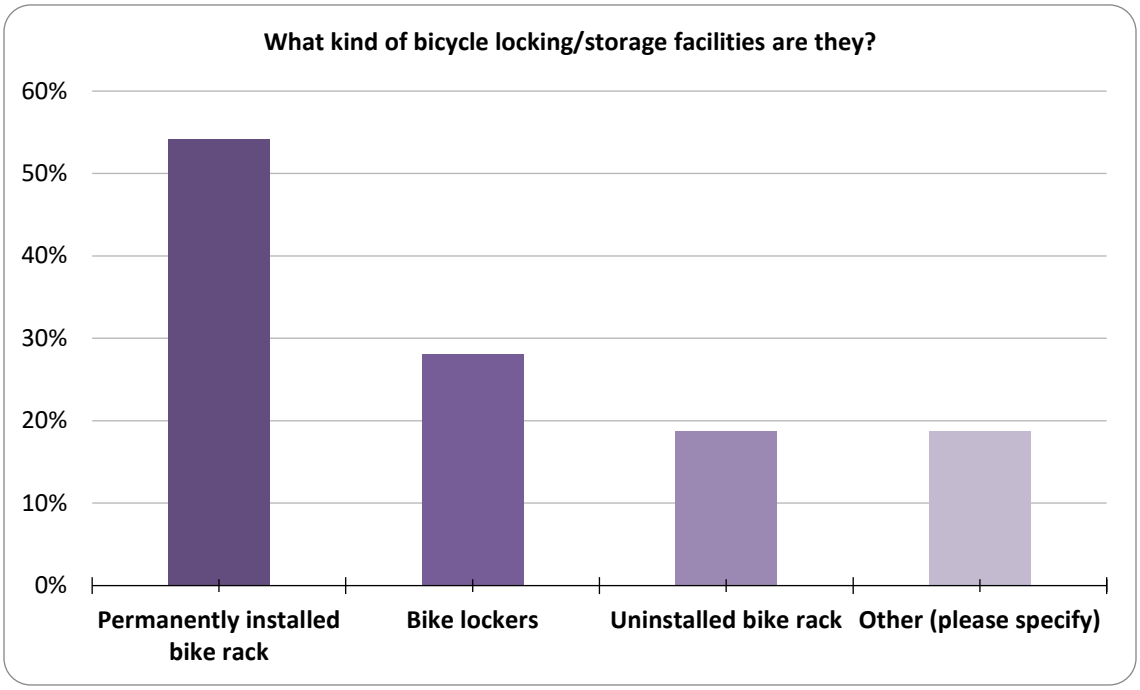


*Figure 22: Question 21: What kind of bicycle locking/storage facilities are they? 96 responses from 319 participants*

Question 22 asked if LANL-owned bicycles were available, for what percentage of intra-lab travel they would be used. Only 24% of the respondents (304 total responses) reported that they would not use LANL-owned bicycles at all; see Figure 23. Question 23 asked participants in what kind of bicycle educational classes would they be interested. 297 participants provided 676 responses of which the top three responses were infrastructure feedback, bicycle maintenance and repair, and bicycle safety in traffic; see Figure 24. Question 25 asked what incentive would encourage one to bicycle commute; 278 participants provided 585 responses. The top two responses were bicycle storage with showers, and time allowance for bicycle commuting; see Figure 25.

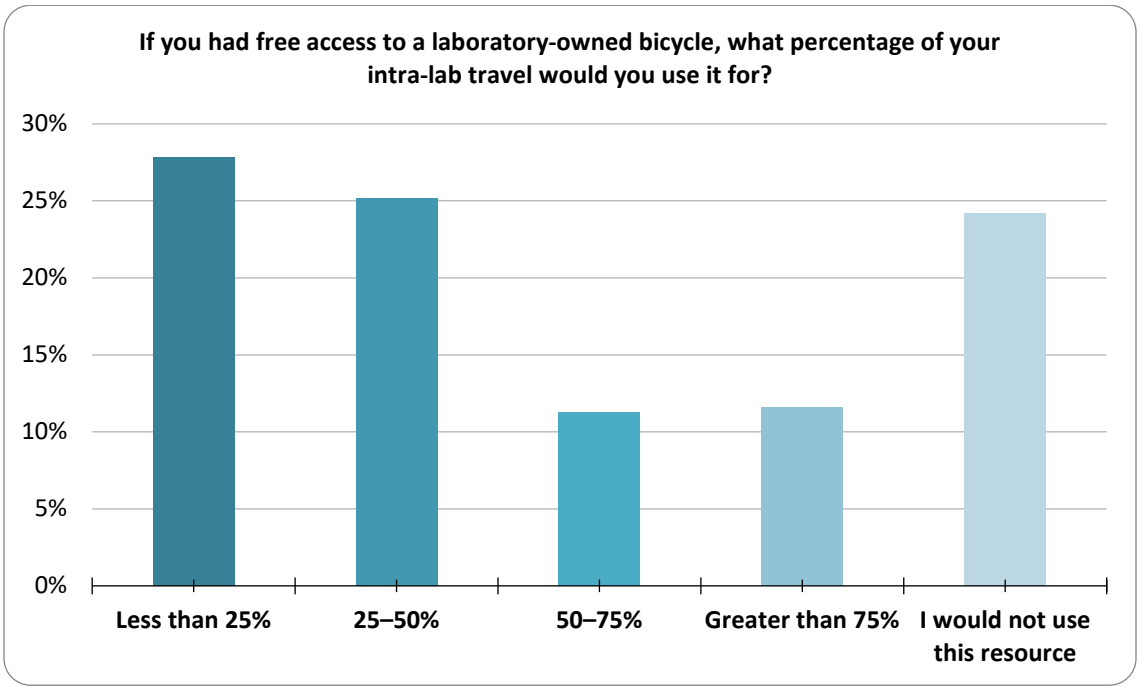


*Figure 23: Question 22: If you had free access to a laboratory-owned bicycle, what percentage of your intra-lab travel would you use if for? 302 responses from 319 participants*

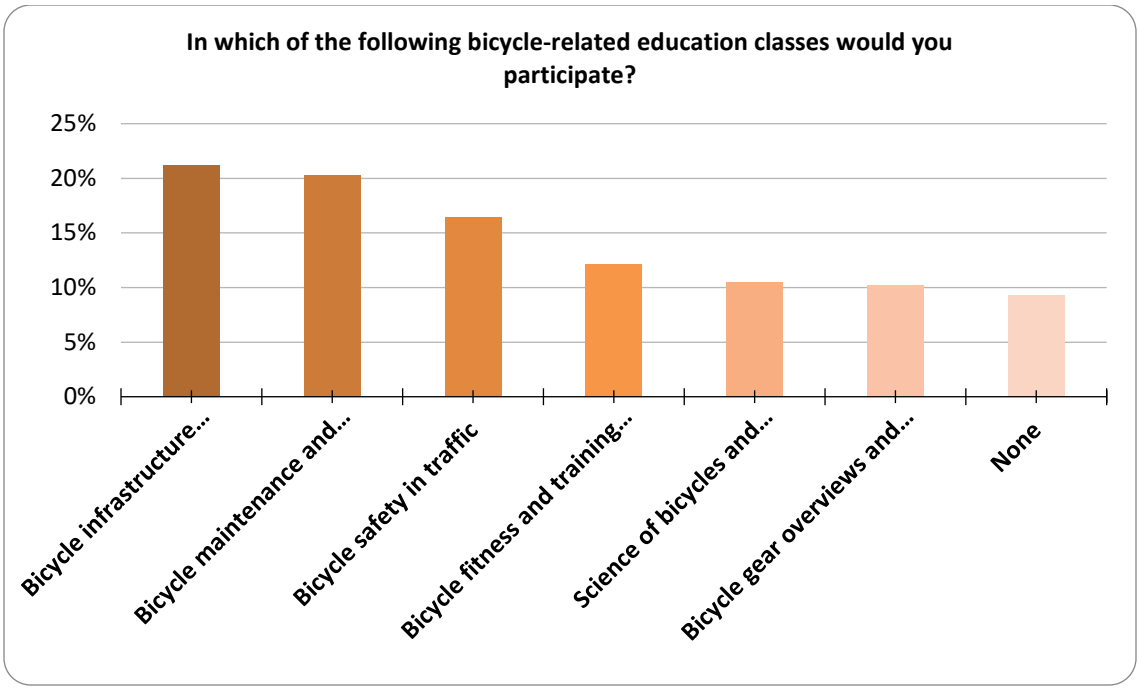


*Figure 24: Question 23: In which of the following bicycle-related education classes would you participate? 297 of 319 participants providing 676 answers*


*Figure 25: Question 25: Which of the following incentives would encourage you to bicycle commute? 28 of 319 participants providing 585 answers*

## VII. QUESTION 24 AGREE / DISAGREE STATEMENTS

Question 24 presented participants with 8 statements and asked them if they agreed or disagreed with the statement. 299 participants provided responses; see Figures 26 through 33. The first statement asked if more robust bicycle facilities would make LANL a better place to work. 85% report that they agree with the statement. The second statement asked if more bike-friendly routes would promote bicycle commuting. Again, 85% reported that they agreed that more bike-friendly routes would promote bicycle commuting. The third statement asked if more robust bicycle facilities would promote bicycle commuting; note the slight difference of this statement with that of the first statement. 70% reported that they agreed that more robust bicycle facilities would promote bicycle commuting. The fourth statement asked if LANL management is sensitive to the needs of bicycle commuters. 41% reported that they neither agree nor disagree. The fifth statement asked if there are adequate bicycle storage facilities at LANL. 51% reported that they disagree. The sixth statement asked if roadways in LANL's TA-3 are safe. 54% responded that they disagree. The seventh statement asked if LANL roadways do a good job accommodating cyclists. 57% responded that they disagree. The final (eighth) statement asked if roadways between TA-3 and other sites are safe for bicyclists, to which 53% reported that they disagree.

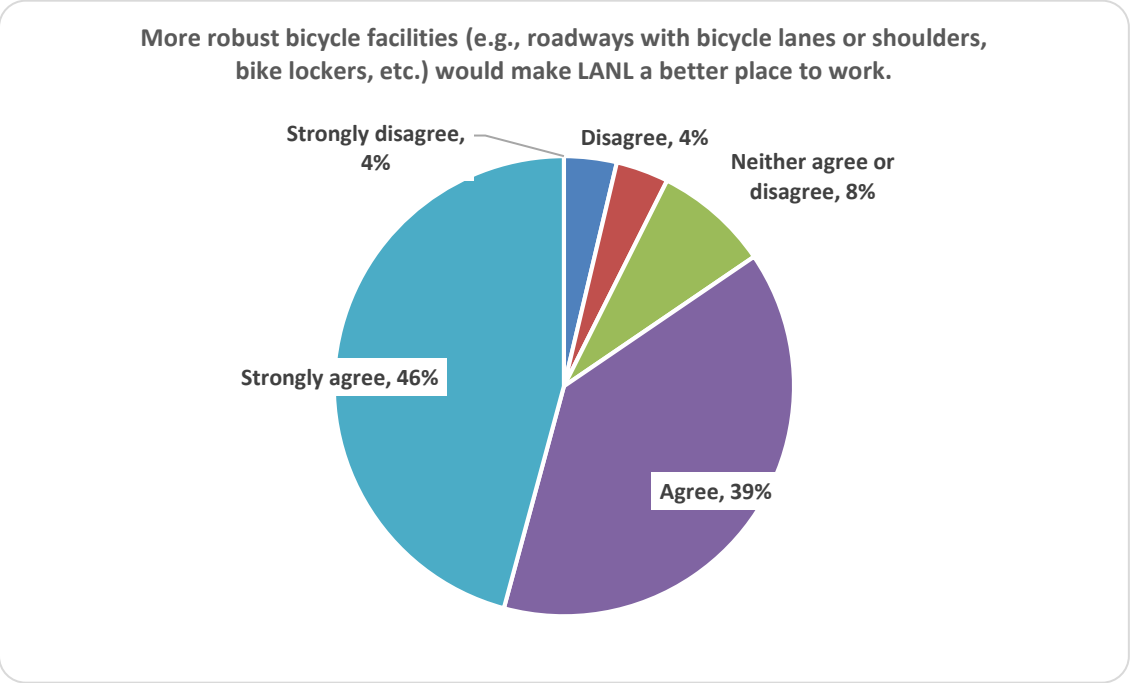


*Figure 26: Question 24, Statement 1: More robust bicycle facilities (e.g., roadways with bicycle lanes or shoulders, bike lockers, etc.) would make LANL a better place to work. 297 responses from 319 participants*

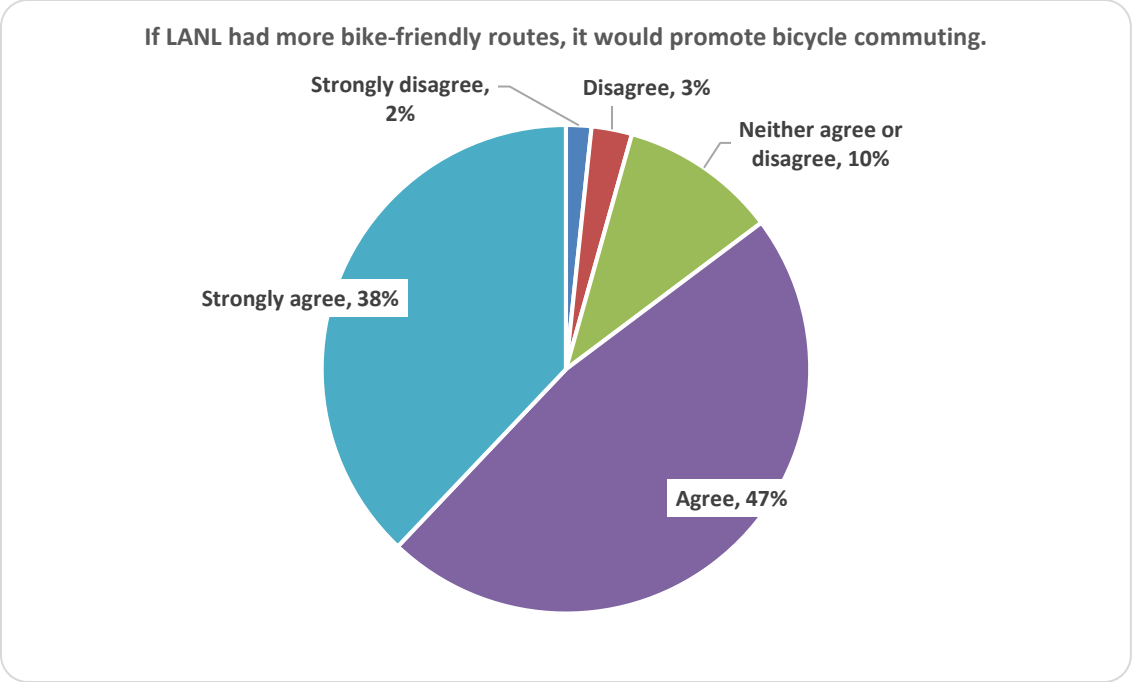


*Figure 27: Question 24, Statement 2: If LANL had more bike-friendly routes, it would promote bicycle commuting. 298 responses from 319 participants*

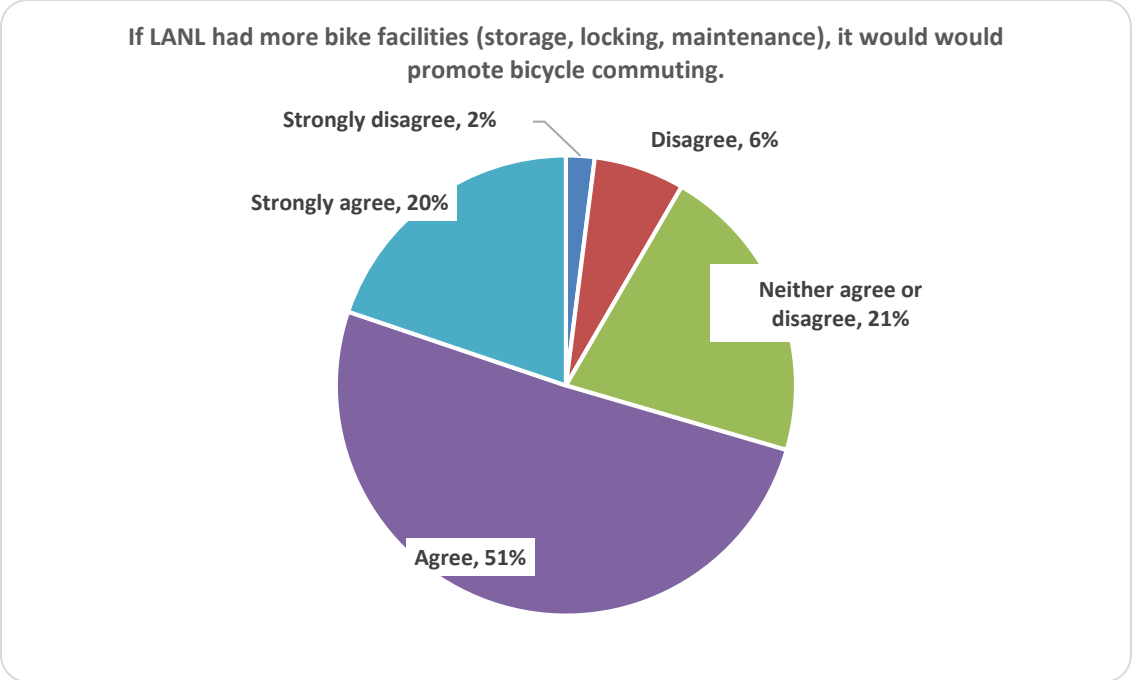


*Figure 28: Question 24, Statement 3: If LANL had more bike facilities (storage, locking, maintenance), it would promote bicycle commuting. 298 responses from 319 participants*

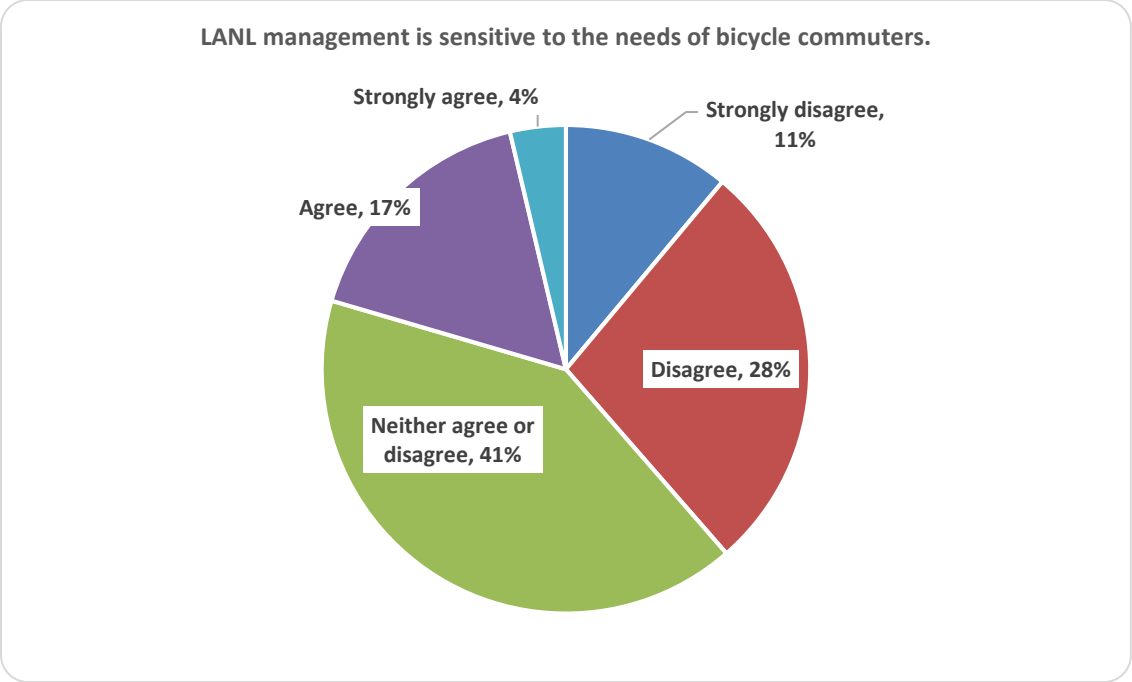


*Figure 29: Question 24, Statement 4: LANL management is sensitive to the needs of bicycle commuters. 298 responses from 319 participants*

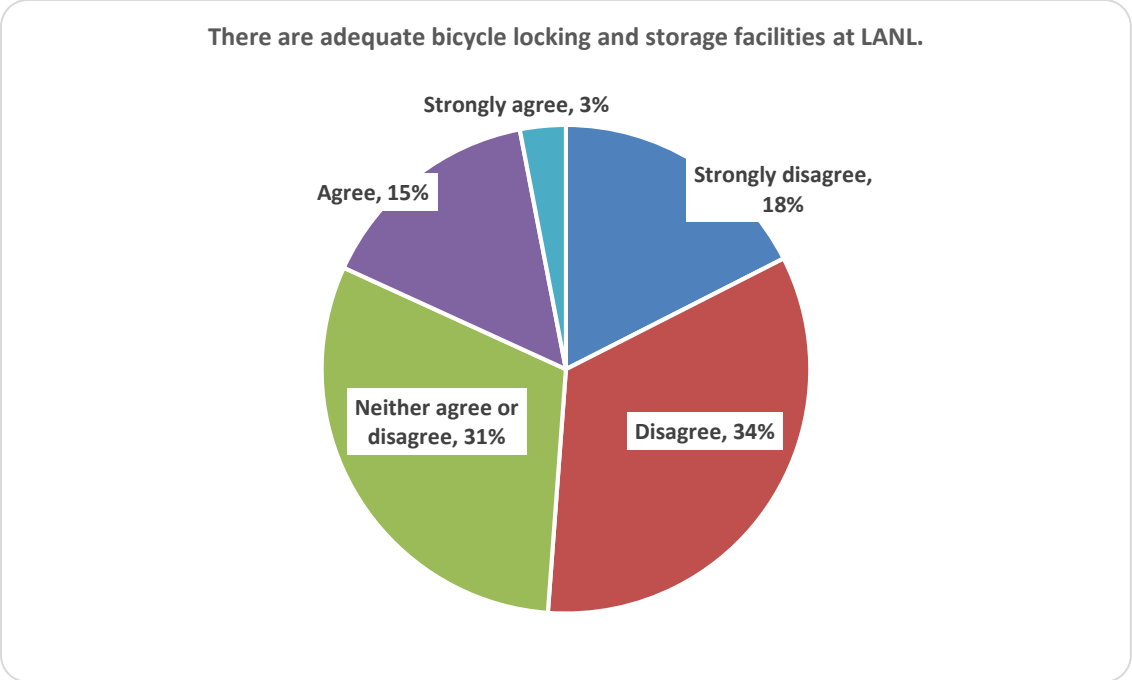


*Figure 30: Question 24, Statement 5: There are adequate bicycle locking and storage facilities at LANL. 297 responses from 319 participants*

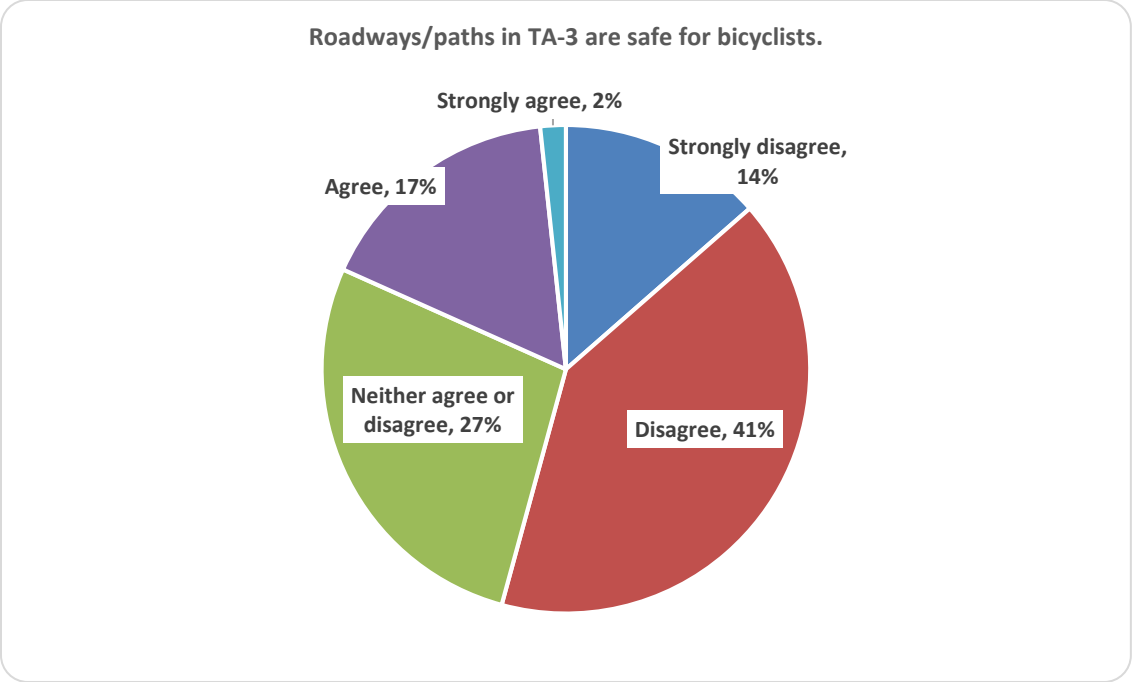


*Figure 31: Question 24, Statement 6: Roadways/paths in TA-3 are safe for bicyclists. 295 responses from 319 participants*

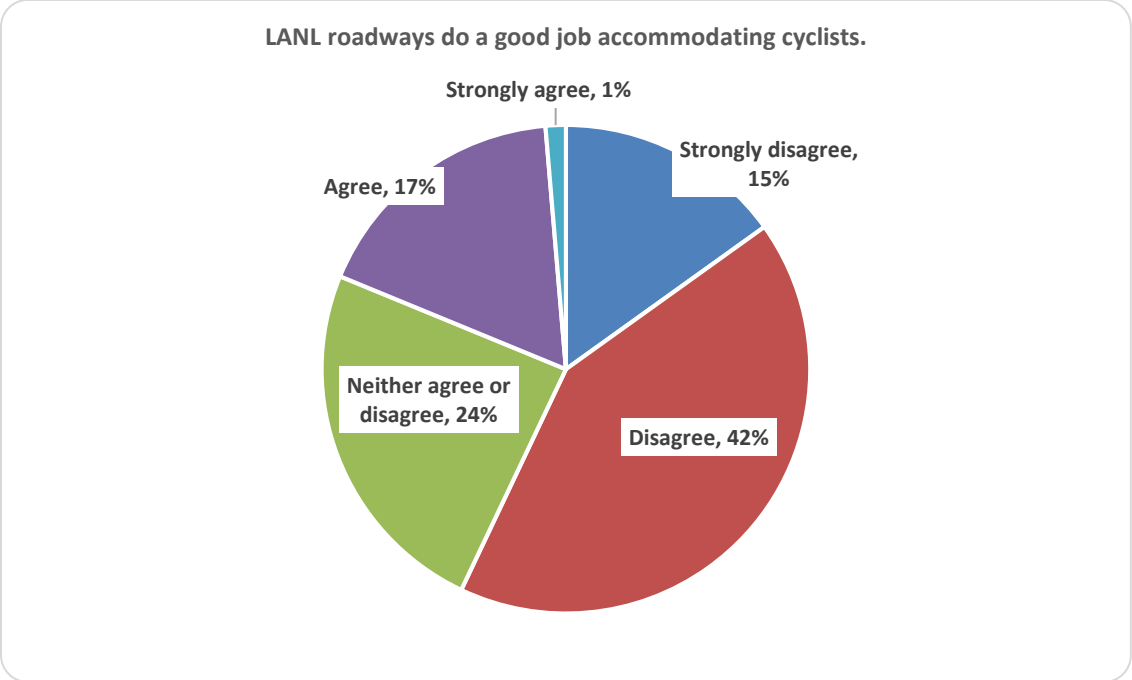


*Figure 32: Question 24, Statement 7: LANL roadways do a good job accommodating cyclists. 298 responses from 319 participants*

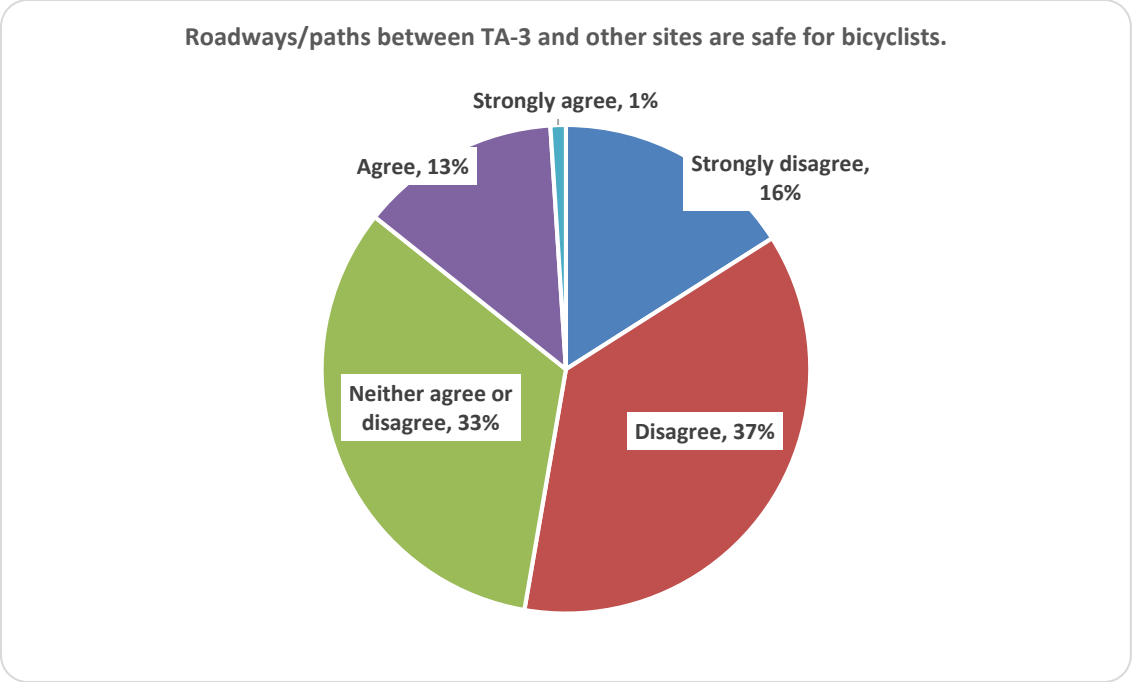


*Figure 33: Question 24, Statement 8: Roadways/paths between TA-3 and other sites are safe for bicyclists. 294 responses from 319 participants*

## VIII. COMMENT QUESTIONS

Questions 26, 27, 28, and 29 were all open-ended questions that allowed participants to provide free form text responses. To analyze the 758 comments collected from the 4 questions, each comment was assigned one or more tag. The tags where then counted and the counts used to gain insights into the repetition of the applied tags. Percentages are based upon the total number of respondents for each question, and not the total number of tags. Comments that were provided that did not answer the question they were posted against were ignored. Some comments referenced previous comments, however, no mechanism was provided in the survey to track comments or answers between questions. Due to this, many such comments were also ignored. Tags with 1 or fewer responses were not shown in Figures 33 through 36. The following lists describes how the tags were applied to the comments received:

- Bike Racks (Taxi): Bicycle transport devices on LANL internal taxi / bus services
- Bike Sharing: LANL-owned bicycles or other bike sharing program
- Bike Storage: Comments about bicycle storage facilities
- Biking Community: General comments about bicycling community
- Education: Applied to comments requesting that others be exposed or educated, applied to comments where the survey participant showed a lack of empathy, or applied to comments requesting additional law enforcement activities
- Flexible Policies: Flexible management policies
- Health: General comments about health
- Infrastructure: Applied to comments requesting general infrastructure

- Lanes: On street dedicated lanes for bicycling
- Parking: Comments about motor vehicle parking
- Portals: Security doors and gates
- Recreational Riding: Comments about riding on LANL property for other than commuting purposes
- Road Maintenance: Comments about roadway maintenance
- Road Sweeping: Removing roadside debris
- Safety Gear: Swag or safety gear, given or subsidized
- Safety: General comments about safety
- Shower Facilities: Shower facilities and or changing / locker room
- Signage: Signs to improve understanding, navigation, or safety
- Trails: Any space a bicyclist can ride on that is physically separated (isolated) from motor vehicle traffic

The following locations tags were also used:

- Anchor Ranch Road: TA-69 to TA-16
- Diamond: From Diamond and West Jemez to Diamond and Pajarito
- East Jemez: From East Jemez and Diamond to East Jemez and NM-4
- NM-4: From West Jemez Road to East Jemez Road
- Omega Bridge: Omega Bridge
- Pajarito: From Diamond and Pajarito to NM-4
- TA-3: Bounded by West Jemez, Bikini Atoll Rd., Pajarito, and Diamond. Includes facilities that are easily accessible from the bounding streets.
- Transit Center: Los Alamos Transit Center including NM-501 from Omega Bridge to Diamond Dr.
- Two Mile Mesa: Anchor Ranch Road to TA-40
- VAPs: Any vehicle access portal
- West Jemez: From West Jemez and Diamond to West Jemez and NM-4

In Question 26, participants were asked how relations between cyclists and non-cyclists could be improved. 204 participants responded resulting in 257 tags, almost 60% responded with comments about education, and 47% responded with comments about bicycle lanes; see Figure 34. In Question 27, participants were asked where unsafe bicycle conditions exist at LANL. 234 participants responded resulting in 324 tags. The top three locations that were tagged were Diamond Drive, West Jemez Road, and Pajarito Road (see Figure 35). East Jemez was the fourth most tagged location, however, there was a certain amount of emotional energy felt in the comments provided since this route was repaved in the summer of 2018. The lesson learned from those comments and the re-pavement project is that when roadways are repaved, the entire width of the roadway should be repaved including the full width of the shoulders. In Question 28, participants were asked what types of improvements would be the most beneficial. 224 participants responded resulting in 310 tags. 68% of the respondents commented on bicycle

lanes, with the next tag, bicycle storage, being in the comments of 18% of the respondents; see Figure 36. Question 29 asked for any additional comments. 96 participants responded resulting in 59 tags. Note that comments saying "thank you" were not tagged. The top two tags were 14% of the respondents had comments about lanes, and 13% had comments about education; see Figure 37.

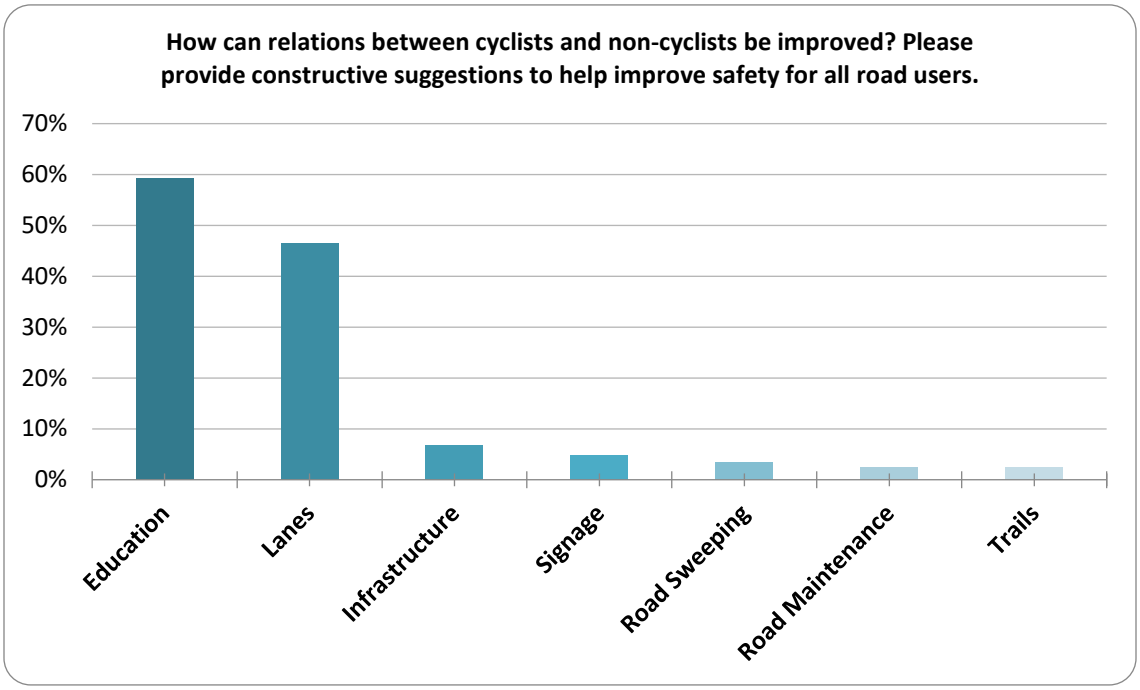


*Figure 34: Question 26: How can relations between cyclists and non-cyclists be improved? Please provide constructive suggestions to help improve safety for all road users. 204 of 319 participants provided comments resulting in 257 tags.*

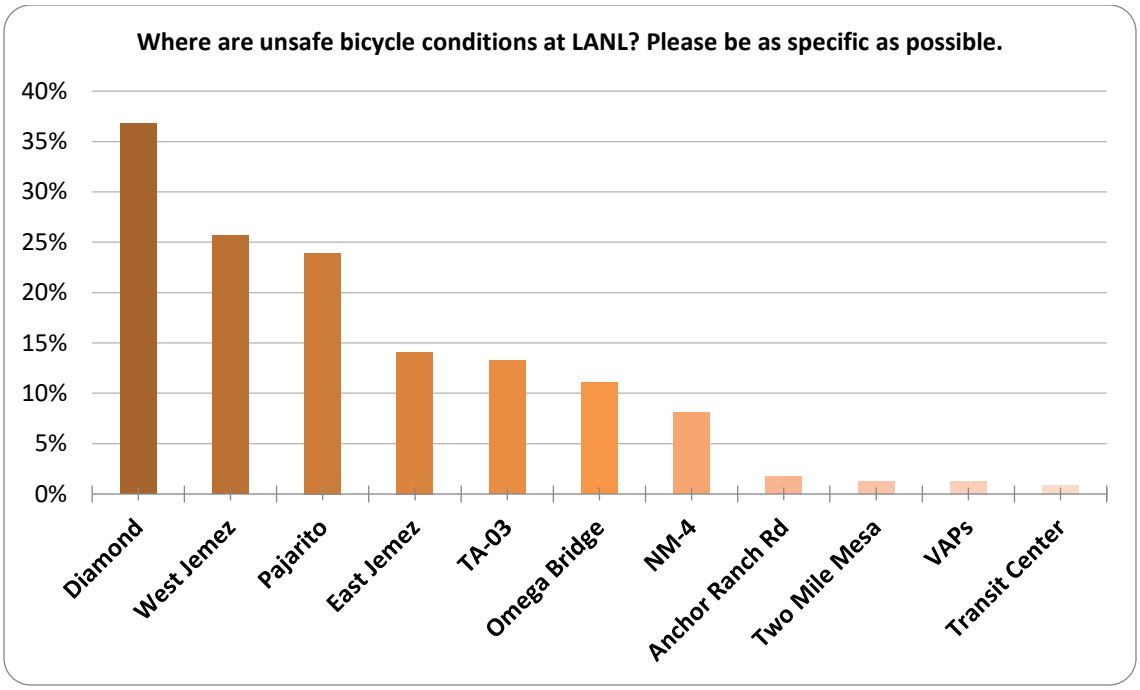


*Figure 35: Question 27: Where are unsafe bicycle conditions at LANL? Please be as specific as possible. 234 of 319 participants provided comments resulting in 324 tags.*

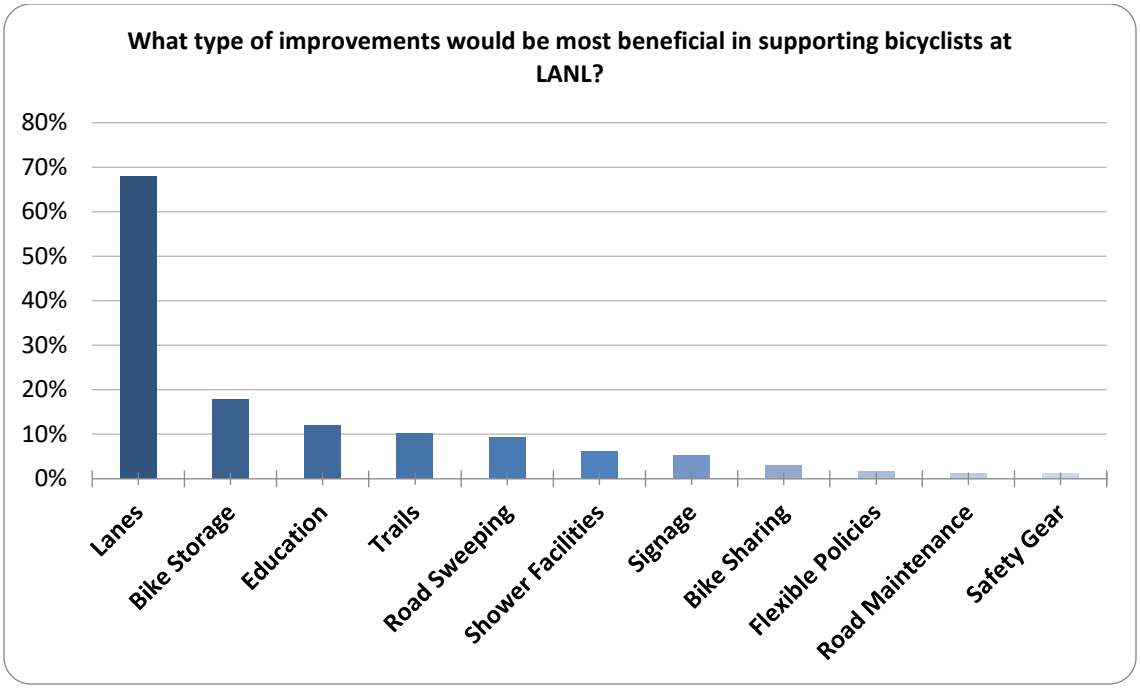


*Figure 36: Question 28: What type of improvements would be most beneficial in supporting bicyclists at LANL? 224 of 319 participants provided comments resulting in 310 tags.*

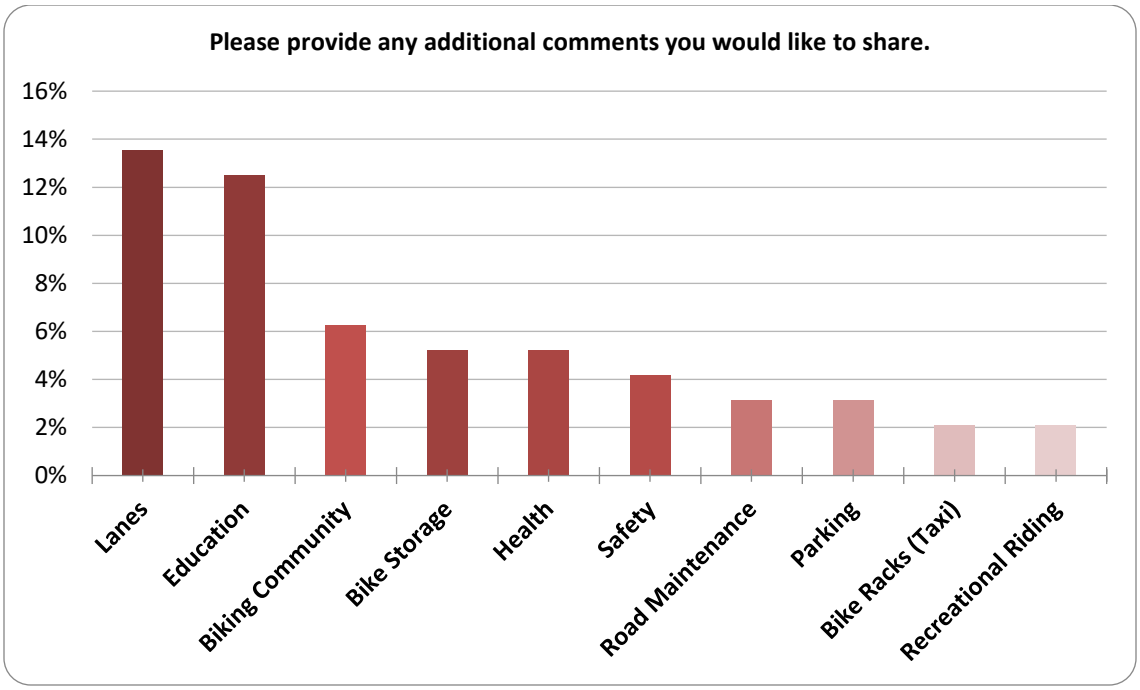


*Figure 37: Question 29: Please provide any additional comments you would like to share. 96 of 319 participants provided comments resulting in 59 tags.*

## IX. CONCULSIONS

Several conclusions can be made from the results presented. Overall it is believed that employee education will help improve the safety of the roadways in and around LANL. The majority of the bicycling community would prefer to have dedicated space for bicycle-use to minimize motor vehicle and bicycle interactions. The road location proposed as offering the most issues by respondents is Diamond Dr. from West Jemez Road to Pajarito Road. The survey participants were self-selected, and shows bias commonly associated with such surveys. Thus, it is not appropriate to extrapolate information from the survey to summarize LANL's workforce. The survey does indicate there are a couple of hundred employees who do commute to work frequently. Respondents noted that as they bicycle to work they are presented with two adverse situations: they can use existing roadways that lack an appropriate shoulder or bike lane, thus increasing traffic congestion and their personal risk; or they can ride on existing sidewalks and run the risk of interacting with pedestrians. The positive aspect as expressed by the respondents, is that bicycle commuting potentially leaves a couple of hundred parking spots on LANL property available.

Overall the November 2018 Bicycle Safety Committee Survey has provided the committee a heightened awareness of the concerns currently held by LANL's bicycling community. This has helped the committee connect with and better understand the community so that in turn, the committee can work with LANL leadership to better prioritize resources for current and future bicycling initiatives. LANL's Bicycle Safety Committee would like to thank all the survey participants for their input.

# X. APPENDIX A: TABULATED SURVEY RESULTS

| Q1: What is your age? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| 25 or younger | 5% | 15 |
| 26–39 | 37% | 119 |
| 40–54 | 34% | 108 |
| 55–64 | 21% | 68 |
| 65 or older | 3% | 9 |
| | **Answered** | **319** |
| | **Skipped** | **0** |

| Q2: What is your gender? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Female | 28% | 90 |
| Male | 70% | 222 |
| Prefer not to answer | 2% | 7 |
| | **Answered** | **319** |
| | **Skipped** | **0** |

| Q3: Where is your home located? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Los Alamos | 61% | 195 |
| White Rock | 14% | 45 |
| Santa Fe | 14% | 45 |
| Espanola Valley | 4% | 14 |
| Jemez Mountains | 2% | 6 |
| Albuquerque | 1% | 4 |
| Other | 3% | 10 |
| | **Answered** | **319** |
| | **Skipped** | **0** |

| Q4: How far is the commute from your home to your primary work location (one way)? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Less than 5 miles | 39% | 125 |
| 5–10 miles | 30% | 95 |
| 11–15 miles | 7% | 21 |
| 16–20 miles | 4% | 12 |
| 21–40 miles | 13% | 41 |
| More than 40 miles | 8% | 24 |
| | **Answered** | **318** |
| | **Skipped** | **1** |

| Q5: Where is your primary work location? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Main TA area (TA-02, 03, 41, 43, 59, 60, 61, 62) | 57.1% | 182 |
| Pajarito Corridor (TA-18, 35, 46, 48, 50, 51, 52, 54, 55, 63, 64, 66) | 23.5% | 75 |
| Los Alamos (TA-00) | 6.9% | 22 |
| West Jemez (TA-06, 08, 09, 11, 14, 16, 22, 28, 40, 58, 69) | 5.3% | 17 |
| East Jemez (TA-53) | 3.1% | 10 |
| White Rock (TA-00) | 2.8% | 9 |
| Remote Areas (TA-15, 36, 37, 67, 68, 70, 71, 72, 73, 74) | 0.9% | 3 |
| NM 4 (TA-33, 39, 49) | 0.3% | 1 |
| DP Road (TA-21) | 0.0% | 0 |
| | **Answered** | **319** |

| Q6: How often do you ride a bicycle? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Multiple days a week | 47% | 150 |
| A few times a year | 17% | 54 |
| Never | 16% | 50 |
| Once a week | 12% | 38 |
| Once a month | 8% | 26 |
| | **Answered** | **318** |
| | **Skipped** | **1** |

| Q7: Why don't you ride a bicycle? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Prefer other sports | 30% | 14 |
| Safety concerns | 17% | 8 |
| Health reasons | 11% | 5 |
| Cost | 2% | 1 |
| Other (please specify) | 39% | 18 |
| | **Answered** | **46** |
| | **Skipped** | **273** |

| Q8: Why do you ride a bicycle? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Exercise/recreation | 92% | 240 |
| Transportation – commuting to work | 54% | 141 |
| Environmental concerns | 31% | 82 |
| Social/family activity | 27% | 72 |
| Transportation – other | 17% | 44 |
| Other (please specify) | 6% | 15 |
| | **Answered** | **262** |
| | **Skipped** | **57** |

| Q9: Which types of bicycle riding do you do? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Road – individual touring or recreational | 67% | 174 |
| Mountain biking – individual recreational | 64% | 166 |
| Commuting to work | 57% | 150 |
| Transportation for short trips around town | 46% | 120 |
| Road – competitive or group rides | 17% | 44 |
| Mountain biking – competitive or group rides | 16% | 43 |
| Gravel rides | 11% | 29 |
| Cyclocross | 2% | 5 |
| | **Answered** | **261** |
| | **Skipped** | **58** |

| Q10: Do you ride an electric bicycle (e-bike)? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Yes | 5% | 12 |
| No | 91% | 236 |
| Not yet, but I plan to | 4% | 11 |
| | **Answered** | **259** |
| | **Skipped** | **60** |

| Q11: What best describes your comfort level on roadways as a bicyclist? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| I am comfortable riding on roads with no bike lane or shoulder | 26% | 69 |
| I am uncomfortable riding on roads with no bike lane or shoulder but will do it if no other options | 60% | 157 |
| I will only ride on roads with a large shoulder or dedicated bike lane | 10% | 25 |
| I will only ride on a path separated from the road | 4% | 11 |
| | **Answered** | **262** |
| | **Skipped** | **57** |

| Q12: Select the top three factors that influence your decision to choose a specific bicycle route? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Dedicated bike lanes, paths, or a large shoulder | 72% | 188 |
| Low to moderate traffic density | 68% | 176 |
| Quality of pavement | 40% | 103 |
| Shortest distance to destination | 35% | 92 |
| Ease of crossing intersections (e.g., smooth pavement, clear markings, traffic control devices, roundabouts) | 30% | 77 |
| Most scenic or most challenging route | 29% | 75 |
| Low traffic speeds | 20% | 51 |
| Flatness of terrain | 9% | 23 |
| Bicycle friendly signage | 6% | 15 |
| Number of traffic signals | 4% | 11 |
| | **Answered** | **260** |
| | **Skipped** | **59** |

| Q13: Have you experienced any of the following while bicycling around LANL? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Indirect threats from vehicles (e.g., careless driving) | 63% | 142 |
| Localized hazards (e.g., shoulders ending unexpectedly, partial paving) on critical routes within and around LANL | 62% | 139 |
| Debris on LANL roads or shoulders that is rarely removed | 58% | 131 |
| Other bicyclists who are not following rules of the road | 43% | 97 |
| Significant near miss with a vehicle or pedestrian | 41% | 92 |
| Aggression/road rage or direct threats from motor vehicle drivers | 36% | 81 |
| Other bicyclists who do not maintain high visibility at all times | 24% | 55 |
| Bicycle crash due to inadequate roadways (e.g., no shoulder, potholes, partial paving) | 11% | 25 |
| Bicycle crash due to aggressive or inattentive drivers | 6% | 13 |
| Bicycle crash due to your inexperience as a cyclist | 3% | 6 |
| Bicycle crash due to a pedestrian interaction | 2% | 5 |
| Bicycle crash for another reason | 9% | 20 |
| | **Answered** | **226** |
| | **Skipped** | **93** |

| Q14: Do you bicycle commute? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Yes | 60% | 156 |
| No | 40% | 105 |
| | **Answered** | **261** |
| | **Skipped** | **58** |

| Q15: Why do you bicycle commute? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Fitness | 83% | 130 |
| Pleasure | 67% | 105 |
| Environmentally friendly | 64% | 100 |
| Convenience (e.g., parking) | 54% | 85 |
| Training | 21% | 33 |
| Other (please specify) | 14% | 22 |
| | **Answered** | **156** |
| | **Skipped** | **163** |

| Q16: How often do you bicycle commute in warmer months (May to October)? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Multiple days a week | 75% | 118 |
| Once a week | 13% | 20 |
| Once a month | 5% | 8 |
| A few times a year | 6% | 10 |
| Never | 1% | 1 |
| | **Answered** | **157** |
| | **Skipped** | **162** |

| Q17: How often do you bicycle commute in colder months (November to April)? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Multiple days a week | 47% | 73 |
| A few times a year | 17% | 26 |
| Once a week | 13% | 21 |
| Never | 12% | 19 |
| Once a month | 11% | 18 |
| | **Answered** | **157** |
| | **Skipped** | **162** |

| Q18: Do you have one or more dedicated commuter bikes? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| No, I use the only bicycle I own. | 32% | 51 |
| No, I select one of several bicycles I own to meet the needs of the day. | 34% | 54 |
| Yes, I have a dedicated “beater bike” as a commuter bicycle. | 8% | 12 |
| Yes, I have a dedicated, well-designed commuter bike with extra gear like fenders, lights, and panniers. | 25% | 40 |
| | **Answered** | **157** |
| | **Skipped** | **162** |

| Q19: What reasons stop you from bicycle commuting? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Too far | 34% | 35 |
| Would take too long | 31% | 32 |
| Not comfortable riding in traffic | 27% | 28 |
| Route to work location is unsafe | 26% | 27 |
| No adequate bicycle locking/storage facilities near work location | 23% | 23 |
| Riding on LANL roadways is unsafe | 21% | 21 |
| No showers in building | 16% | 16 |
| Do not have a bicycle or appropriate cycling gear/clothing | 5% | 5 |
| Insufficient street lighting | 4% | 4 |
| Other (please specify) | 30% | 31 |
| | **Answered** | **102** |
| | **Skipped** | **217** |

| Q20: Are there adequate bicycle locking/storage facilities near the entrance of your primary work location? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Yes | 37% | 97 |
| No | 53% | 140 |
| Not sure | 10% | 25 |
| | **Answered** | **262** |
| | **Skipped** | **57** |

| Q21: What kind of bicycle locking/storage facilities are they? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Permanently installed bike rack | 54% | 52 |
| Bike lockers | 28% | 27 |
| Uninstalled bike rack | 19% | 18 |
| Other (please specify) | 19% | 18 |
| | **Answered** | **96** |
| | **Skipped** | **223** |

| Q22: If you had free access to a laboratory-owned bicycle, what percentage of your intra-lab travel would you use it for? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Less than 25% | 28% | 84 |
| 25–50% | 25% | 76 |
| 50–75% | 11% | 34 |
| Greater than 75% | 12% | 35 |
| I would not use this resource | 24% | 73 |
| | **Answered** | **302** |
| | **Skipped** | **17** |

| Q23: In which of the following bicycle-related education classes would you participate? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Bicycle infrastructure feedback and discussion sessions | 48% | 143 |
| Bicycle maintenance and repair | 46% | 137 |
| Bicycle safety in traffic | 37% | 111 |
| Bicycle fitness and training planning | 28% | 82 |
| Science of bicycles and bicycling seminars | 24% | 71 |
| Bicycle gear overviews and reviews | 23% | 69 |
| None | 21% | 63 |
| | **Answered** | **297** |
| | **Skipped** | **22** |

| Q24: Do you agree or disagree with the following statements? | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Strongly disagree | | Disagree | | Neither agree or disagree | | Agree | | Strongly agree | |
| More robust bicycle facilities (e.g., roadways with bicycle lanes or shoulders, bike lockers, etc.) would make LANL a better place to work. | 4% | 11 | 4% | 11 | 8% | 24 | 39% | 115 | 46% | 136 |
| If LANL had more bike-friendly routes, it would promote bicycle commuting. | 2% | 5 | 3% | 8 | 10% | 31 | 47% | 141 | 38% | 113 |
| If LANL had more bike facilities (storage, locking, maintenance), it would promote bicycle commuting. | 2% | 6 | 6% | 19 | 21% | 63 | 51% | 151 | 20% | 59 |
| LANL management is sensitive to the needs of bicycle commuters. | 11% | 33 | 28% | 82 | 41% | 122 | 17% | 50 | 4% | 11 |
| There are adequate bicycle locking and storage facilities at LANL. | 18% | 52 | 34% | 100 | 31% | 91 | 15% | 45 | 3% | 9 |
| Roadways/paths in TA-3 are safe for bicyclists. | 14% | 40 | 41% | 120 | 27% | 81 | 17% | 49 | 2% | 5 |
| LANL roadways do a good job accommodating cyclists. | 15% | 45 | 42% | 125 | 24% | 72 | 17% | 52 | 1% | 4 |
| Roadways/paths between TA-3 and other sites are safe for bicyclists. | 16% | 47 | 37% | 108 | 33% | 97 | 13% | 39 | 1% | 3 |
| | | | | | | | **Answered** | | | **299** |
| | | | | | | | **Skipped** | | | **20** |

| Q25: Which of the following incentives would encourage you to bicycle commute? | | |
|---|---|---|
| **Answer Choices** | **Responses** | |
| Guaranteed safe and secure bicycle storage and showers near my workplace | 60% | 168 |
| Time allowance to allow for slower transportation and personal hygiene | 53% | 147 |
| Store discounts or coupons | 29% | 80 |
| Bicycle safety gear awards | 28% | 78 |
| Virgin Pulse points | 22% | 60 |
| Even with incentives, I will not bicycle commute. | 19% | 52 |
| | **Answered** | **278** |
| | **Skipped** | **41** |

| Q26: How can relations between cyclists and non-cyclists be improved? Please provide constructive suggestions to help improve safety for all road users. | | |
|---|---|---|
| **Tags applied to comments** | **Responses** | |
| Education | 59% | 121 |
| Lanes | 47% | 95 |
| Infrastructure | 7% | 14 |
| Signage | 5% | 10 |
| Road Sweeping | 3% | 7 |
| Road Maintenance | 2% | 5 |
| Trails | 2% | 5 |
| | **Answered** | **204** |
| | **Skipped** | **115** |

| Q27: Where are unsafe bicycle conditions at LANL? Please be as specific as possible. | | |
|---|---|---|
| **Tags applied to comments** | **Responses** | |
| Diamond | 37% | 86 |
| West Jemez | 26% | 60 |
| Pajarito | 24% | 56 |
| East Jemez | 14% | 33 |
| TA-3 | 13% | 31 |
| Omega Bridge | 11% | 26 |
| NM-4 | 8% | 19 |
| Anchor Ranch Rd | 2% | 4 |
| Two Mile Mesa | 1% | 3 |
| VAPs | 1% | 3 |
| Transit Center | 1% | 2 |
| Research Park | 0% | 1 |
| | **Answered** | **234** |
| | **Skipped** | **85** |

| Q28: What type of improvements would be most beneficial in supporting bicyclists at LANL? | | |
|---|---|---|
| **Tags applied to comments** | **Responses** | |
| Lanes | 68% | 152 |
| Bike Storage | 18% | 40 |
| Education | 12% | 27 |
| Trails | 10% | 23 |
| Road Sweeping | 9% | 21 |
| Shower Facilities | 6% | 14 |
| Signage | 5% | 12 |
| Bike Sharing | 3% | 7 |
| Flexible Policies | 2% | 4 |
| Road Maintenance | 1% | 3 |
| Safety Gear | 1% | 3 |
| Route Maps | 0% | 1 |
| VAPs | 0% | 1 |
| Bike Repair Station | 0% | 1 |
| | **Answered** | **224** |
| | **Skipped** | **95** |

| Q29: Please provide any additional comments you would like to share. | | |
|---|---|---|
| **Tags applied to comments** | **Responses** | |
| Lanes | 14% | 13 |
| Education | 13% | 12 |
| Biking Community | 6% | 6 |
| Bike Storage | 5% | 5 |
| Health | 5% | 5 |
| Safety | 4% | 4 |
| Road Maintenance | 3% | 3 |
| Parking | 3% | 3 |
| Bike Racks (Taxi) | 2% | 2 |
| Recreational Riding | 2% | 2 |
| e-bike | 1% | 1 |
| East Jemez | 1% | 1 |
| Road Sweeping | 1% | 1 |
| Omega Bridge | 1% | 1 |
| | **Answered** | **96** |
| | **Skipped** | **223** |